LET'S COMPUTE!

PAC MAN...

A super game to type in

3 Easy-to-enter CONTESTS

For ALL users of: Electron, BBC, Amiga, C64/128, Archimedes, Spectrum, Atari ST, PC, Amstrad CPC

No 10 May 1991
A Database Publication

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PARENTS & TEACHERS!

Turn to Page 26 for ways of developing the National Curriculum content of Let's Compute!

A BIT ON THE SIDE

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REGULARS

The Program Doctor	GOTO 17
Create an adventure	GOTO 19
Build a Database	GOTO 29
The Games Gang	GOTO 30
Logo Lowdown	GOTO 35
The Final Front-Ear	GOTO 38
Hi-Scores	GOTO 43
Prize winners	GOTO 43

Noticeboard

Tubular display

Here's a simple program for the Spectrum. It draws a tube of circles that get bigger as it goes on.

```
10 BORDER 5:PAPER 7:INK 2:CLS
20 LET y=165
30 LET i=2
40 LET x=15
50 LET r=2
60 FOR l=1 TO 25
70 CIRCLE x,y,r
80 LET i=i-1
90 LET x=x-i/2
100 LET y=y+i/3
110 LET r=r-i/4
120 NEXT l
```

– Lee McShane (12), Newton Aycliffe, Co. Durham.

If you have any tips for other readers, send them in. And if you have any questions about your computer or software just ask us. We'll try to answer them on the Noticeboard.

Let us know what you want to see in future issues. And if we use your letter or ideas we'll send you a *Let's Compute!* baseball hat! Send your letters to:

***Let's Compute!* Europa House, Adlington Park, Macclesfield SK10 4NP**

Remember to tell us your age.

Revving up

I have made some changes to the car racing game. On my Amiga I added these lines:

```
91 FOR Z = 1 TO 2
92 SOUND 196,5,255,0
93 SOUND WAIT
94 SOUND RESUME
95 NEXT Z
```

I also found that by changing the 30 in Line 100 you can alter the length of the track.

By the way, if you find my sound too loud change the 255 in Line 92 to anything lower.

– Matthew Webster (10), Moreton, Merseyside.

Lines 91 to 95 will only work on an Amiga. But your suggested change to the track length is OK for ALL computers.

Password problems

The March issue of *Let's Compute!* was very enjoyable. I especially liked the Program Doctor with his Password program.

But one day I forgot the password. So I tried to break in and I managed it. I just listed the program up to Line 70 and found the line that the password was on. Please can you tell me how to stop someone like my sister doing this?

– Peter Ford (10), Workingham, Berkshire.

You didn't say what sort of computer you have. We know a simple way to stop programs being listed on Acorn computers. That's printed below.

If any *Let's compute!* readers know ways of protecting programs on other computers let us know. We'll pin some to the noticeboard.

On Acorn computers try typing this program in:

```
10 REM SORRY IT WON'T LIST *****
20 PRINT "THE PROGRAM WORKS"
1000 REM *
```

LIST it and RUN it. It works just as you would expect. Now type:

```
?(PAGE+27)=21
?(TOP-3)=6
```

Again try LIST and RUN. It now RUNS, but it won't LIST.

board

Don't cheat

I have typed in and tried Nim from the April issue of *Let's Compute!* I discovered that you can win when there are three sticks in the pile and it's your go.

Take away 1.5 sticks and the computer loses. It is even possible when the computer starts. To stop this happening I changed every M to M%. This means that all the numbers you type in will be treated as whole numbers.

– Thomas Watts (11), New Malden, Surrey.

It's cheating to take parts of sticks! Your solution will work on most computers.

But we think an even better way is to tell the player to stop cheating. This line will do that on all home computers:

```
55 IF M<>INT(M) THEN PRINT "CHEAT!!! Y
OU CAN'T TAKE PART OF A STICK":GOTO 50
```

Any name will do!

On a recent survey, about 20 per cent of programmers used FRED as a password. Have you any idea why?

– Alex Waddell (10), Reading, Berks.

Programmers are often poor typists. As the letters FRED are in a square on the keyboard they can find them easily!

Do you want a problem page?

I think *Let's Compute!* is great. The programs are brill and Rom and Ram are a great laugh. The competitions are wicked.

But there is one thing that is missing. A problem page where people could write in for help.

– Daniel Dilley (13), Chester

Loads of people send letters asking us for help. We already answer as many as we can fit on the Noticeboard or in the Games Gang.

What do other readers think? Should we have a page specially to answer problems? Let us know what YOU think.

Race mods

I thought you might like to see my alterations for the car racing game in the March issue. These lines are for the C64 but they can easily be changed to suit other computers.

```
  5 POKE 53280,24
  7 POKE 53281,24
  9 PRINT CHR$(158)
 71 IF N=1 THEN P=8
 72 IF N=2 THEN P=7
 73 IF N=3 THEN P=6
 74 IF N=4 THEN P=5
 75 IF N=5 THEN P=4
 76 IF N=6 THEN P=3
 77 IF N=7 THEN P=2
 78 IF N=8 THEN P=1
 80 POKE 211,P(L):POKE 214,L*P:SYS 5873
2:PRINT C$(L)
```

Lines 5 to 9 change the whole screen orange and the writing yellow. The rest space the cars out according to the number entered.

– Michael Cavers, Duns, Berwickshire

The first three lines only work on a C64 or 128 so people with other computers should miss them out. Also, Line 80 is different for all computers.

Anyone wanting to use Michael's changes on a different make should just replace the L*2 in the published Line 80 with L*P.

Here's a programming tip. Loads of IF...THENs following each other can often be replaced by one line.

Notice that in Lines 71 to 78 P and N always add up to 9. This means that you can always find P by taking N away from 9.

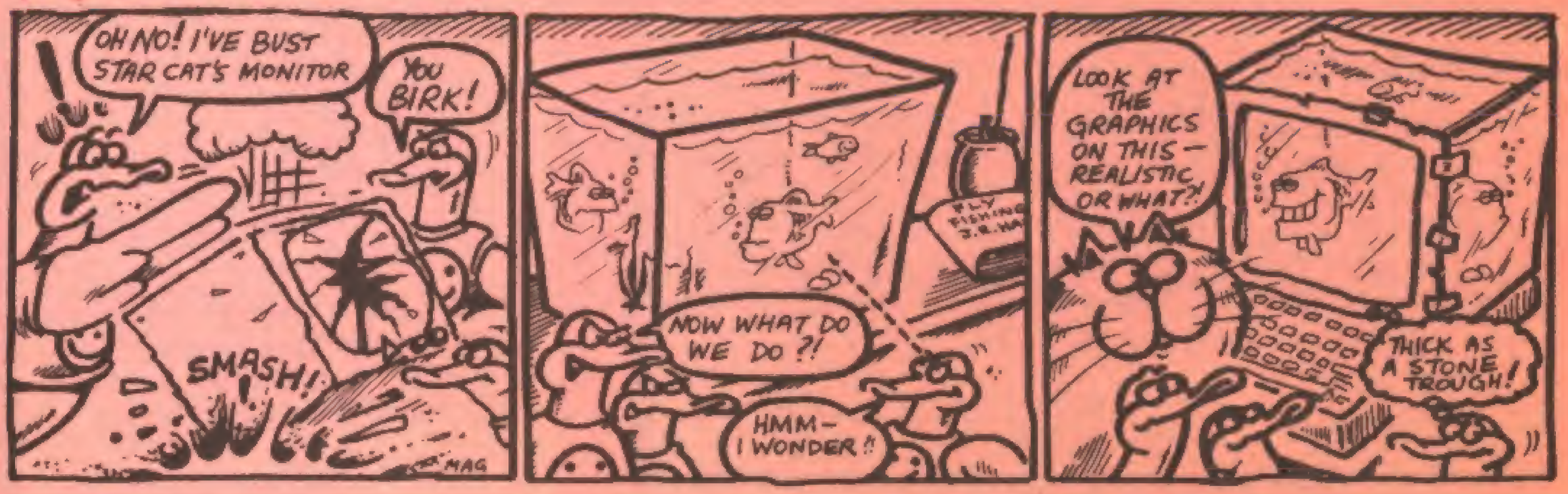
So the eight lines can be replaced by:

```
75 N=9-P
```

Spectrum owners should type LET N=9-P. Also, Lines 71 to 78 of Michael's version need LET after the word THEN on a Spectrum.

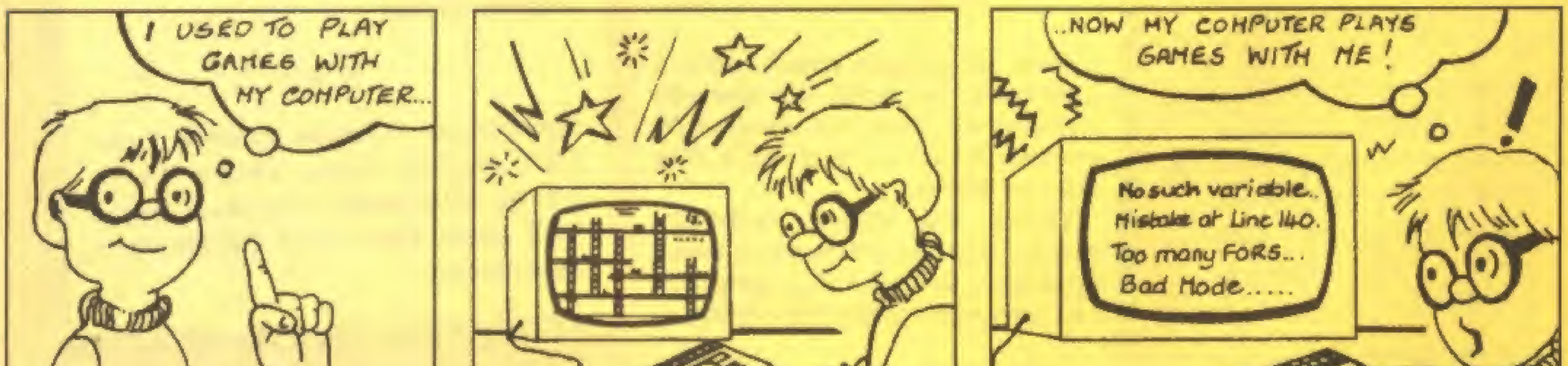
KEYBOARD KAPERS

STARCAT



SPECCY AND ARCHIE

The Micro Kid



GUESS THE LETTER

LET'S MAKE MONEY

Part 6

Use Colin Markwell's game to raise more cash!

Guess the Letter is a game of chance. It's great for any fund raising event.

Type in the program – very carefully. SAVE it and then RUN it.

For fund raising at a school fete or any other occasion you must first LOAD the game. Make sure Caps Lock or Shift Lock is pressed. Then let people guess the letter which the computer will pick at random. They are given five chances. At the end they are told what they have won – if anything!

Change lines 310 to 330 to suit your needs. *G* is the number of goes you've had and *W$* is the message given with that score. If you want more than five goes, change the 5 in Lines 90 and 100.

This game is educational as well. It's a fun way to learn the alphabet.

If you aren't using it for fundraising you can get rid of some messages. Just delete Lines 310 to 340.

Of course, the program can be modified in lots of ways to suit your own needs. For example, you can change the messages, add more or put some sounds in it.

Happy Fund raising!

This program and the description printed here are by Colin Markwell (13) from Ipswich. It's based on the old *Guess the number I'm thinking of* Game. Colin's idea of using letters adds a new twist to it.

```
  10 REM GUESS THE LETTER GAME!
  20 REM By C.Markwell
  30 REM (c) Let's Compute!
  40 CLS
  50 LET S=RND(-TIME):REM Randomise
  60 PRINT:PRINT:PRINT"The Let's Comput
e! Guessing Game"
  70 LET C=64+RND(26):REM Choose letter
  80 PRINT:PRINT "O.K. Start guessing."
  90 FOR G=1 TO 5:REM 5 GOES
 100 PRINT:PRINT"Chance number ";G;" ou
t of 5 guesses."
 110 PRINT
 120 GOSUB 370:PRINT A$:REM GET LETTER
 130 PRINT:LET Q=ASC(A$)
 140 IF Q<65 OR Q>90 THEN PRINT"That's
a silly guess!":GOTO 100
 150 IF G=5 THEN GOTO 180
 160 IF Q<C THEN PRINT"It's further on
in the alphabet"
 170 IF Q>C THEN PRINT "It's earlier on
 in the alphabet."
 180 IF Q=C THEN PRINT "You've got it r
ight! Congratulations!":GOTO 280
 190 NEXT G
 200 PRINT:PRINT "Oh dear. You failed t
o guess the"
 210 PRINT "letter (Which was ";CHR$(C)
;")"
 220 PRINT:PRINT:PRINT"Do you want anot
her go (Y or N)?"
 230 GOSUB 370:REM Get a Y or N
 240 IF A$="Y" THEN RUN:REM Start Again
 250 IF A$<>"N" THEN GOTO 230
 260 STOP
 270 REM Win!
 280 PRINT:PRINT:PRINT"You've completed
 the game in ";G;
 290 IF G=1 THEN PRINT " Go!!!"
 300 IF G>1 THEN PRINT " Goes."
 310 IF G=5 OR G=4 THEN LET W$="your mone
y back."
 320 IF G=3 OR G=2 THEN LET W$="twice as
much as you paid."
 330 IF G=1 THEN LET W$="THE JACKPOT!"
 340 PRINT:PRINT "You win ";W$
 350 GOTO 220
 360 REM Get a key
 370 PRINT"ENTER A LETTER ";:INPUT A$
 380 RETURN
```

IS THIS YOUR COMPUTER?

BBC, Electron and Archimedes

The program works as shown

AMIGA and PC(GW-Basic)

Change these lines:

```
50 RANDOMIZE TIMER
70 LET C=65+INT(RND*26)
```

ST(STOS)

Change these lines:

```
50 LET Z=RND(TIMER)
70 LET C=65+RND(25)
```

Amstrad CPC

Change these lines:

```
50 RANDOMIZE TIME
70 LET C=65+INT(RND*26)
```

Spectrum

Change these lines:

```
 50 RANDOMIZE
 70 LET C=65+INT(RND*26)
130 PRINT:LET Q=CODE(A$)
```

Commodore 64/128

Use capital letters.
Change these lines:

```
40 PRINT CHR$(147);
70 LET C=65+INT(RND(0)*26)
```

The *Let's Compute!* expert takes a break from Basic and looks at the top games

Navy SEALS

Here's another movie tie-in. This time with the film released at the same time as the game.

The SEALS are not grey mammals found in the Atlantic. They are a crack selection of SAS men.

Your mission is to eliminate an arms base. In your way are numerous enemy troops who must be destoyed.

Navy SEALS is not just another game where you walk along and shoot everything in sight. There are lots of hazards to avoid too.

The best of these is an intelligent enemy. They don't just turn on you and fire as soon as you are on the screen.

They can only get to you if they see you. You can creep up on them from behind, or leap from above.

You've only five lives to last you over various levels. So the going is tough! This means your lives don't last long.

The graphics are superb – with

Back to the Future III

This is the latest in the series based on the Back to the Future films. The first wasn't very successful – but things have improved since then.

You play the hero – Marty McFly – and you have to go back to the American Wild West as it was 100 years ago. There you must find and rescue your pal, Doc Brown.

To stop you is the charmingly named *Mad Dog*. He and his henchmen will stop at nothing to shoot you and the Doc.

The game has many different levels. Each more or less follows stages in the film. The graphics on each vary, but are generally of a high quality.

Sound is pretty good too, with some nice effects. But, a better use of tunes would have improved the game.

There are other things I don't like. The game is a bit of a mish-mash, as the different levels don't flow one to another.

Also, the plot's difficult to follow if you haven't seen the films. Added to this the gameplay in the later section is a bit too hard.

You can get Back to the Future III for the Atari ST, Amiga and PC for £24.95. The Spectrum, C64 and Amstrad CPC versions cost £9.95 on tape or £14.95 on disc.

Overall this is a good game, despite the few design problems. But if you ignore these it is fun, and a must for fans of the films.

Play it Ag

Network

plenty of detail. The sprites are big. But this leads to the game slowing down. It can take a long long time to plod through the levels.

The other problem is the scrolling. It isn't as smooth as it could be. But the sound is fine, with nice chunky blasting effects!

Navy SEALS is from Ocean for the Atari ST, Amiga and PC. It costs £29.99.

This is a well presented and original game. But the lack of speed reduces enjoyment.

Dick Tracy

The Dick Tracy game is based on the famous film and comic strip. He's an undercover cop in the New York of the 1920s. His job is to stop the big gangs with their evil gambling, drink and protection rackets.

Like several other new releases, the game is based on parts of the film. Various shots from it are seen as you play.

The aim is very simple. Walk along beating all the bad guys. At first you only have your fists – but you soon pick up a gun. Keep your eyes peeled for other useful bits and pieces too.

The best part is walking around the nice graphics. Apart from that I found it rather boring.

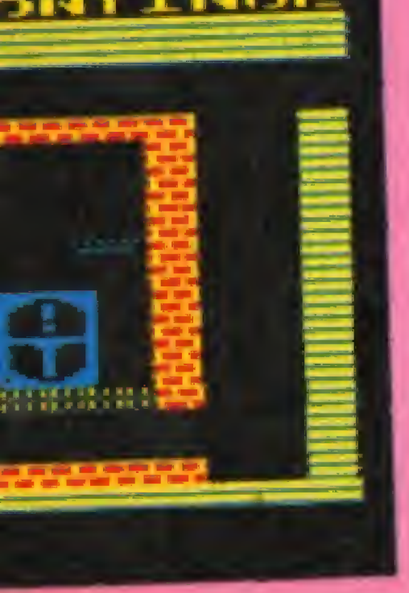
The graphics have been drawn in a special cartoon style. They work very well. But the choice of colours could have been better – they are mostly yellow and red. Neither do the screens scroll gently from one to another. The landscape clears and then a new scene appears.

But the sound is good. There are some nice tunes and some reasonable effects.

Dick Tracy costs £24.95 for the Atari ST, Amiga and PC. Spectrum, CPC and C64 versions are on their way.

The game has many good points, but they are beaten by the bad ones. Though there are better film tie-ins, there are worse ones too.

ain Sam 15



This compilation series for the BBC and Electron is now on its 15th edition. As usual there are four games – this time two old ones plus two new releases.

First in the line-up is **Last Ninja II**. This is the cream of the collection. It features an interesting 3D look. And, despite the title, it isn't just a martial arts beat-'em-up. There are elements of searching and planning too.

Ricochet is the second re-release in the collection. Like Last Ninja II it originally cost £11.95.

The hero of the game is a squishy red ball, named Sprat. You must control him and help him out of a world of weird levels and platforms. There are five levels with nice graphics and effects – excellent!

The two new games are not so impressive. **Cyborg Warriors** is a scrolling blast-'em-up. The graphics are OK but not superb. But it is a nice contrast to the others.

Finally we have **Network**. It's a level adventure game – a little similar to Ricochet. I was disappointed with it.

Sam 15 is available from Superior Software for £11.95 on tape, £14.95 on 5.25in disc and £19.95 on 3.5in disc.

Apart from Network the compilation is very good. The other three games are varied and give good value for money.

Rom's Recruits

Do you think YOU could review games? Each month Rom is looking for one new reviewer to help him out.

Let us know if you have a new game for your computer which you would like to write about. All you have to do is write your review and send us a copy.

Here are a few things to remember when you write:

- Tell us the proper name of the game and software house who supply it.
- Say what computer you reviewed it on.
- Let us know how much it cost.
- Send a photograph of yourself as well as your name, age and address.
- Give us your mark for the game out of 10.

Send your reviews to: Rom's RoundUp, Let's Compute! Europa House, Adlington Park, Macclesfield SK10 4NP.

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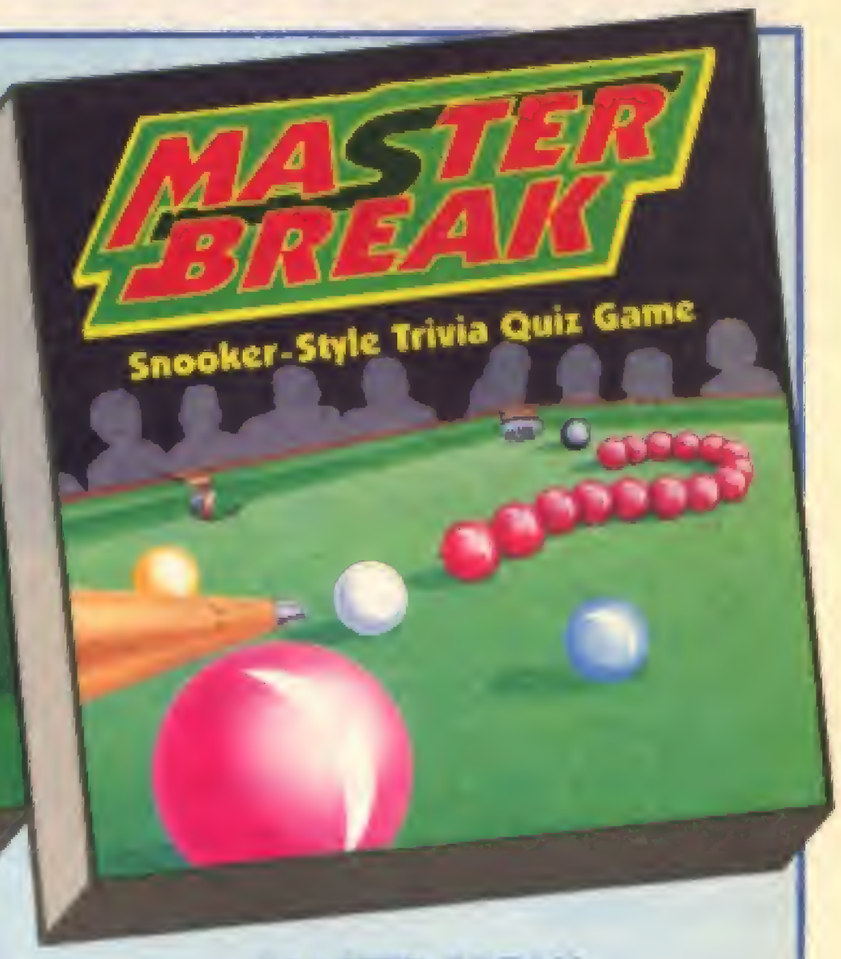
A3000/Archimedes



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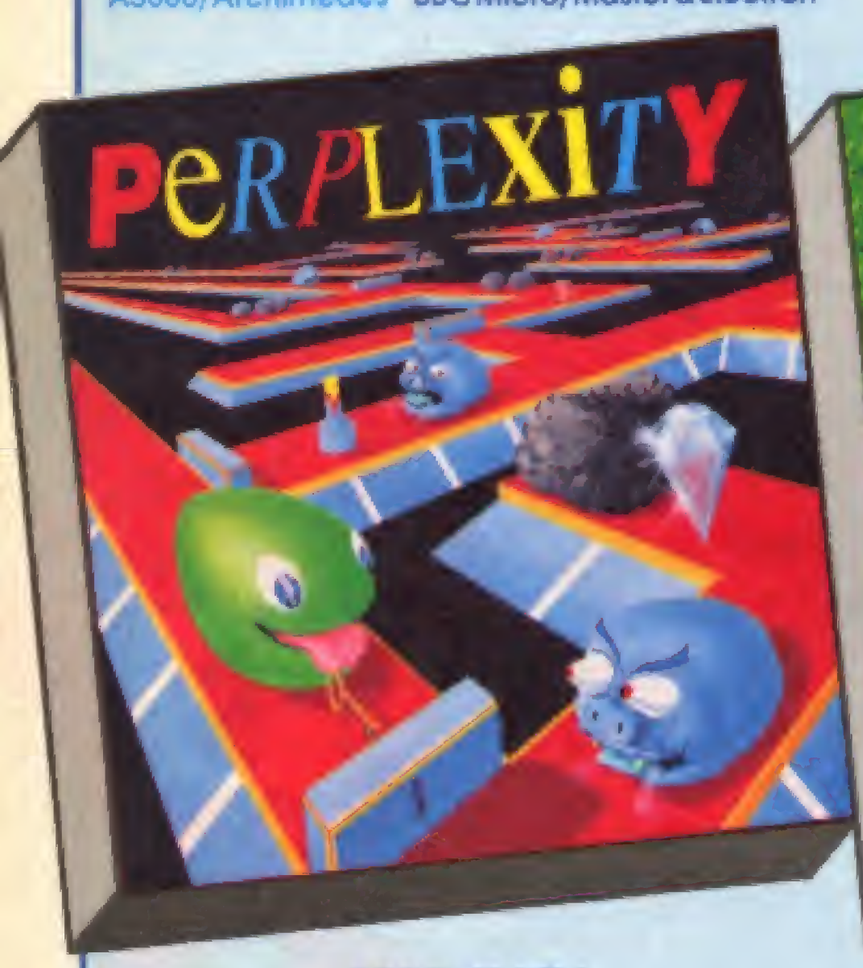
A3000/Archimedes BBC Micro/Master & Electron



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BBC Micro/Master & Electron

PLAY IT AGAIN SAM 14

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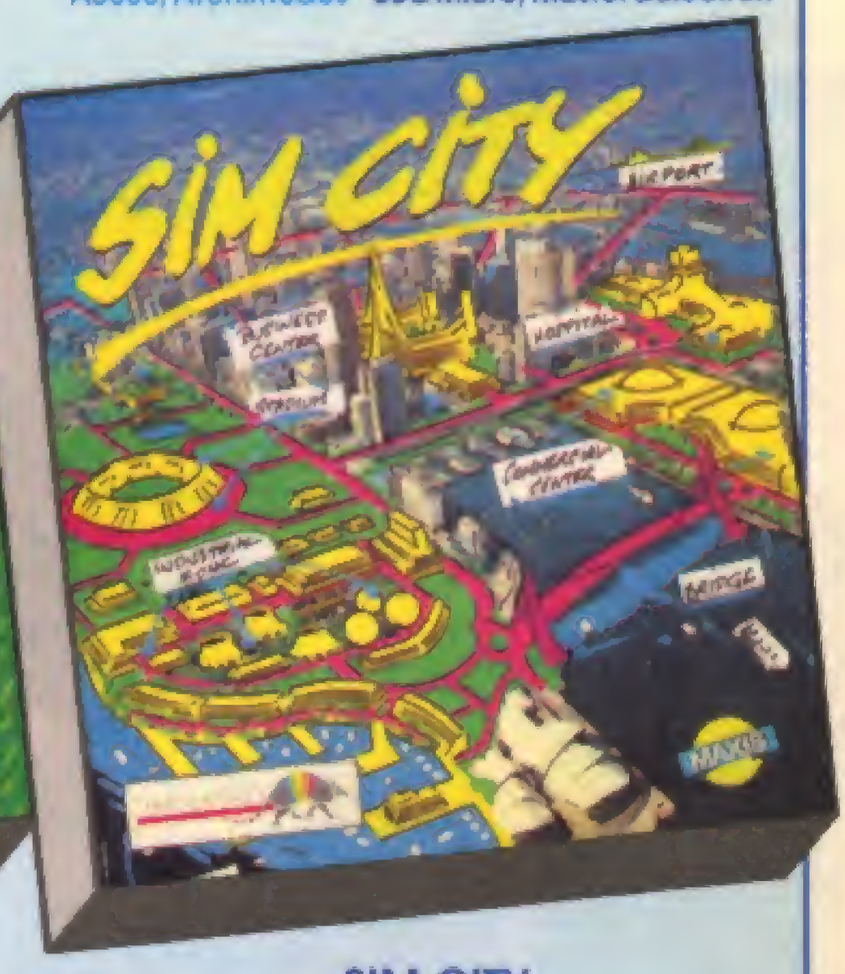
BBC Micro/Master & Electron



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The Unique Award-Winning City Simulation Game. *"Icon based - but you'll need your wits. A totally engrossing game that you will be playing for many months to come"*...Micro User.

BBC Micro/Master & Electron

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Our A3000/Archimedes titles include great classics such as ZARCH, CONQUEROR and REPTON 3, which now has superb new enhanced graphics, specially produced by the winner of the Design-a-Screen competition.

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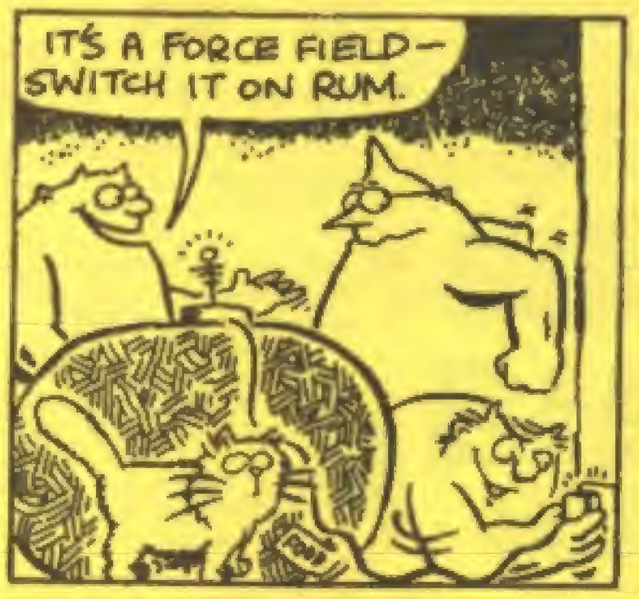
ROM & RAM

?

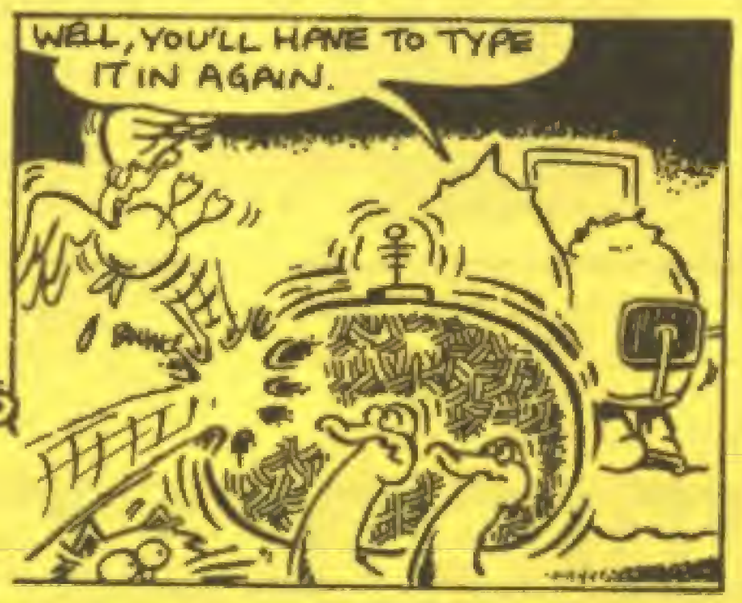
WHERE'S RUM, ROM?
HE'S COMING; HE'S BRINGING MY FOOD.

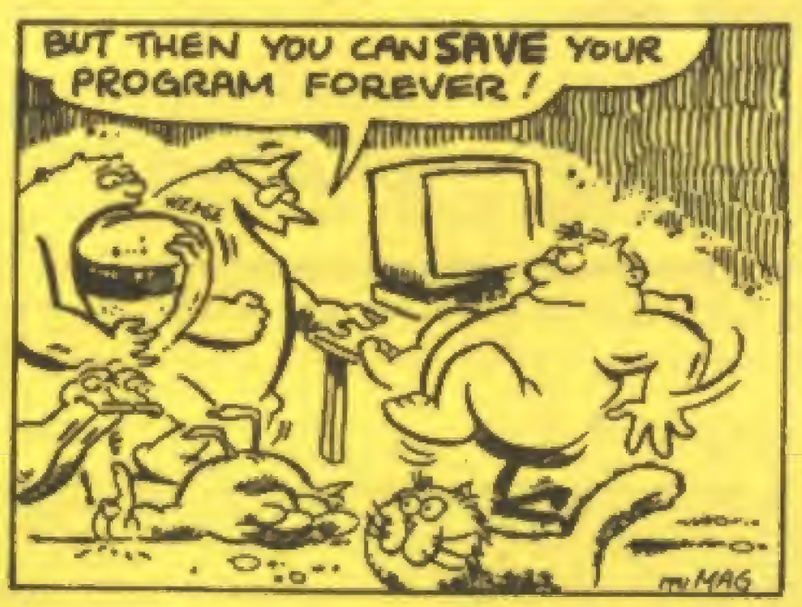
HERE HE IS!
WHAT'S THIS ROM?
DRAT
FOOD

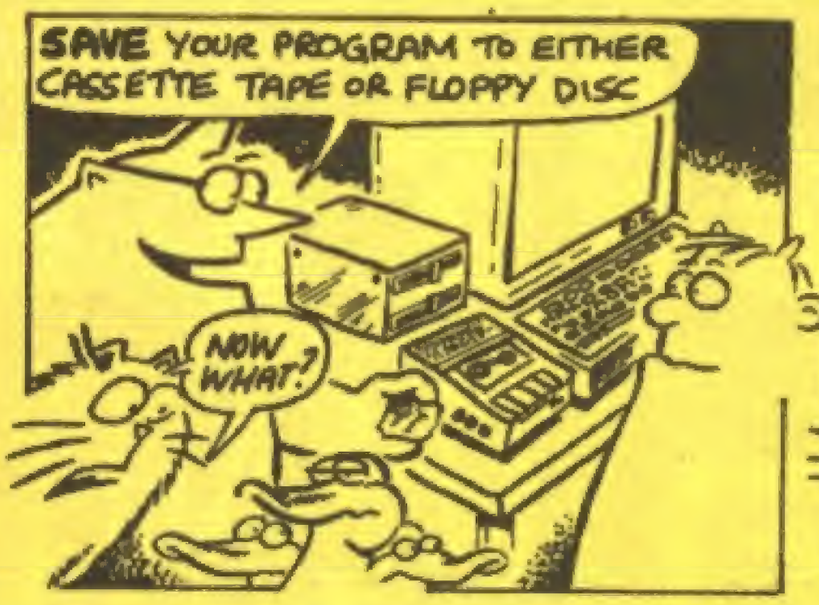

IT'S A FORCE FIELD— SWITCH IT ON RUM.

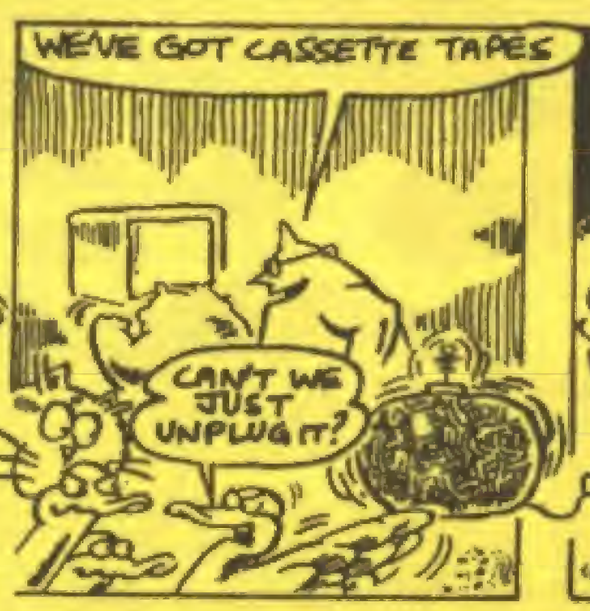
THAT'LL KEEP THOSE GREEDY BEASTS AWAY!
ZAP
HUM
FOOD

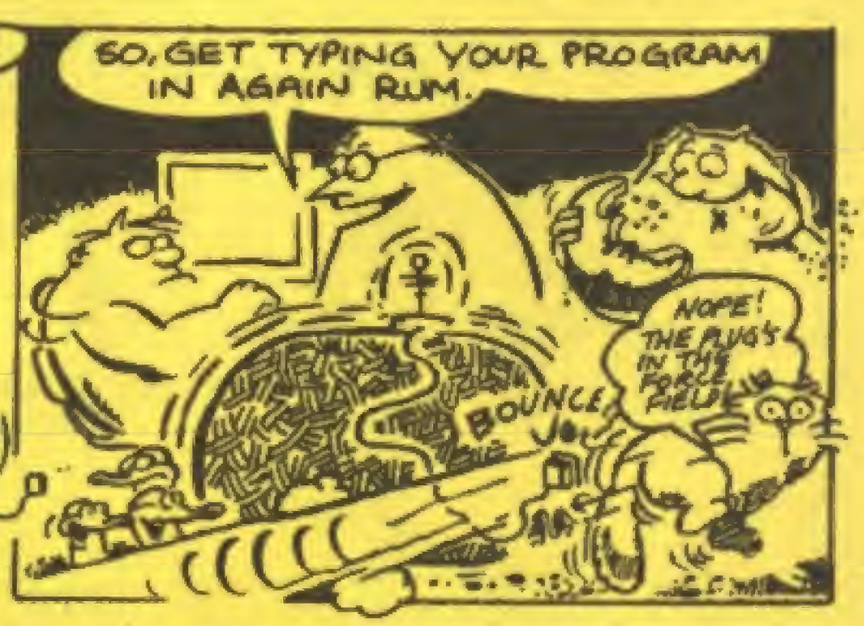
NOW THEN RUM, YOU LOST YOUR PROGRAM LAST MONTH.
I KNOW.


WELL, YOU'LL HAVE TO TYPE IT IN AGAIN.


BUT THEN YOU CAN SAVE YOUR PROGRAM FOREVER!
MEMAG


SAVE YOUR PROGRAM TO EITHER CASSETTE TAPE OR FLOPPY DISC
NOW WHAT?


WE'VE GOT CASSETTE TAPES
CAN'T WE JUST UNPLUG IT?


SO, GET TYPING YOUR PROGRAM IN AGAIN RUM.
NOPE! THE PLUG'S IN THE FORCE FIELD!
BOUNCE

WE'LL HAVE TO TRY AND BUST IT!

FINISHED RAM! NEXT?
FETCH ME THE ATOMIC TIN OPENER
YOU CANNOT BE SERIOUS?!

WELL, THINK OF A NAME FOR YOUR PROGRAM
?
THROB
ATOMIC TIN OPENER
ZAP
REBOUND
YIKE!

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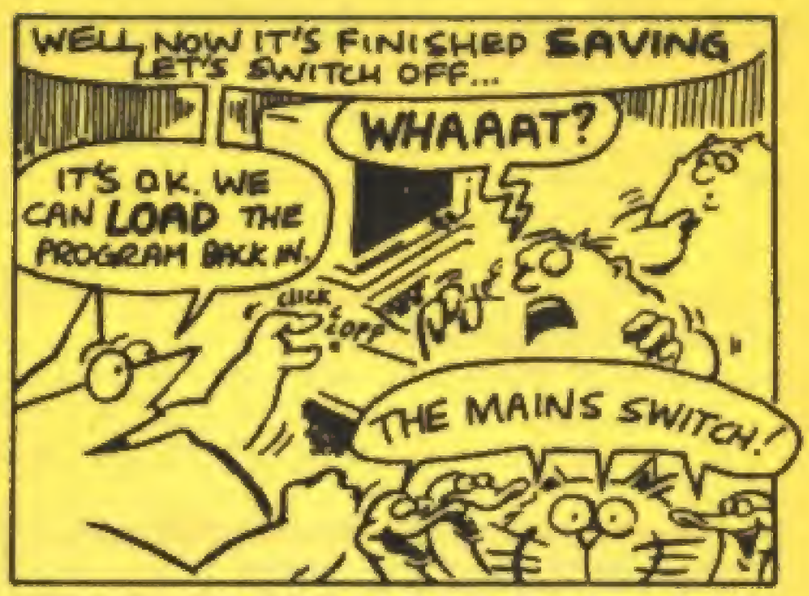

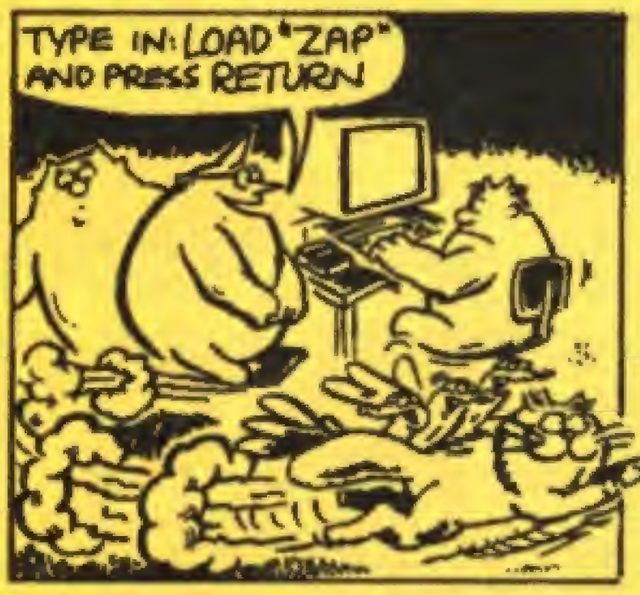

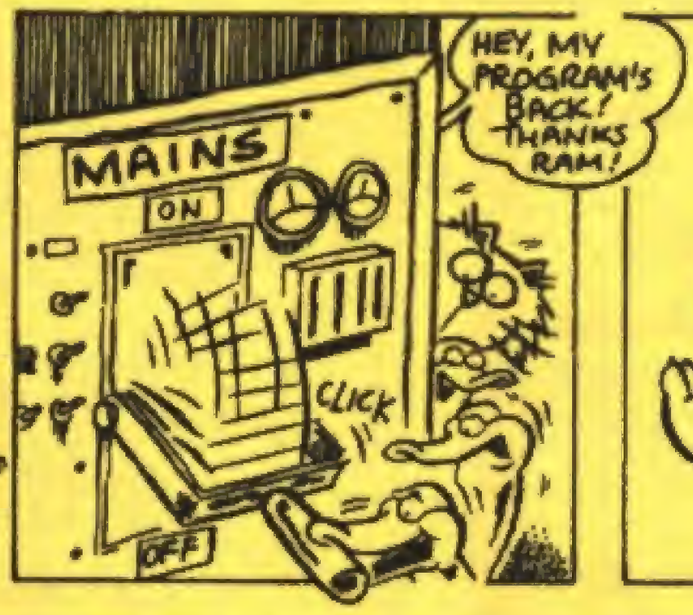

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WHAT TO DO

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For the writer of the first correct entry to be pulled from the sack on May 31 there is a very special prize – a complete collection of all 21 Famous Five books. The next five winners will each receive a copy of The Famous Five on a Treasure Island for their computer.

The Questions

Now fill in the entry form and make sure we receive it at *Let'sCompute!* before May 31. Only one entry per person please.

1. Which of the following were not created by Enid Blyton?
a The Secret Seven
b Noddy and Big Ears
c Danger Mouse

2. One of these is not an island in Scotland. Which one?
a Guernsey
b Eigg
c Arran

3. Which of the following is not a type of dog?
a German Shepherd
b Bolshoi
c Poodle

Entry Form

Name.....

Address.....

.....

.....

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1 .....

2 .....

3 .....

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D162 Neighbours... Ramsey St. slideshow.
D075 Puggs in Space... funny cartoon.
D089 Star Trek... animation.
D201 Total Recall... game demo.
D095 Turtlemania... cowabunga!!
D107 Watership Down... slideshow.

GAMES

G058 2-Player Soccer... tactical.
G001 All New Star Trek (2 Disks)... great.
G022 Chess... check it out!
G063 Electric Train-set (1 Meg)... good.
G059 Escape from Jovi... control ship.
G010 Function 1... solitaire etc.
G013 Golden Fleece... text adventure.
G078 Lame ST Ports... like space invaders.
G066 Learn and Play 1... puzzles.
G067 Learn and Play 2... good.
G040 Monopoly... excellent.
G019 Pacman... classic adaptation.
G065 Quizmaster 2... good quiz.
G060 Snakepit... eat the food.
G041 Trek Trivia... test trek knowledge.
G053 Treasure Hunt... find the treasure.
G030 Wraithed One... simple quiz.

MUSIC

M061 808 State... 4 remixes.
M092 Betty Boo... amazing sample.
M006 Depeche Mode... good.
M011 Digital Concert 6... over 10 mins long.
M012 Games Music Creator... write music.
M101 Feel the Rhythm... Bass X.
M097 Madonna (4 Disks)... Vogue.
M107 Pet Shop Boys... Suburbia.
M131 Simpsons (3 Disks)... Bartman!
M094 Technotronics... megamix.
M032 Walk this Way... recommended.

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U072 A-Gene (1 Meg)... family tree.
U063 Amigazer... basic astronomy.
U074 APDL 71... 3D art, fonts.
U071 Biorhythms (1 Meg)... chart your feelings.
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U076 Catalogue Maker (2 Disks)... good.
U065 Chet Solace... over 20 utilities.
U010 Darkstar 5... disk repairer etc.
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U029 Enable... create puzzles.
U062 Iconmania... various icons.
U067 Programming Disk... good.
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PROGRAM·DOCTOR

HI DOC! I'VE IMPROVED THIS TABLES TESTING PROGRAM YOU GAVE ME LAST MONTH.

```
10 PRINT "WHICH TABLE"
20 INPUT T
30 FOR Q=0 TO 12
40 PRINT "WHAT IS ";Q;"X";T;
50 INPUT A
52 IF A=Q*T THEN PRINT "RIGHT"
54 IF A<>Q*T THEN PRINT "WRONG"
58 IF A<>Q*T THEN GOTO 50
60 NEXT Q
```

EYE CHART

PAY M& NOW

YES, I TOLD YOU TO MAKE IT ALLOW THREE TRIES FOR EACH QUESTION.

BUT DOES IT GO ON TO THE NEXT QUESTION WHETHER YOU'VE ANSWERED RIGHT OR WRONG?

ZIP! ZIP!

ER...NO COULD YOU SHOW ME?

YOU NEED WHAT PROGRAMMERS CALL A COUNTER. SET IT TO ZERO, THEN ADD ONE EACH TIME AN ANSWER'S WRONG

THAT'S GREAT! NOW CAN I MAKE IT KEEP SCORE AS WELL?

NICE ONE! ADD *ANOTHER* COUNTER. EACH TIME A QUESTION IS ANSWERED RIGHT *FIRST* TIME ONE IS ADDED TO THE SCORE

PLASTERS

DIAGNOSIS UNWELL!

```
35 LET C=0
55 IF A<>Q*T THEN LET C=C+1
56 IF C=3 THEN GOTO 60
```

Tear

Prescription

YOU NEED TO SET THE NEW COUNTER TO ZERO NEAR THE START OF THE PROGRAM

```
5 LET S=0
```

```
51 IF A=Q*T AND C=0 THEN LET S=S+1
```

HA! EVEN I KNOW YOU NEED TO PRINT IT AS WELL. WILL THIS DO?

GIVE THAT MAN A PRIZE!

WELL DONE! YOU COULD ALSO PRINT THE SCORE BEFORE EACH QUESTION:

THAT'S ALL FOR NOW TEACH! NOW I'VE GOT TO LOOK AT A PROBLEM A *CUB SCOUT* HAS FOR ME!

DON'T SMOKE OR BURST INTO FLAMES!

```
70 PRINT "YOU SCORED ";S;" OUT OF 13"
```

```
36 PRINT "YOUR SCORE IS ";S;" OUT OF ";Q
```

PLASTER STRIPS

I'LL TELL YOU ALL ABOUT IT *NEXT MONTH!*

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The obje

Adv

Up to now we've created an adventure landscape that can be moved around at will. Now let's move on to the next important part of your adventure manager – placing the objects.

Most adventures use objects. Remember the ones in The Golden Crown in February's issue of *Let's Compute?*

There you had objects like a large bucket and the cloak. You could pick them up and use them as part of the game.

Now we are going to put objects into OUR adventure. You can see them in the DATA in Lines 6000 to 6300. Add these to your program.

Note that the last DATA line contains a *rogue value*. It works like the one in the word list. This was explained in the March issue.

Remember, using this system means you can easily add things to your list. You don't have to tell the program how many things there are in it.

Look at the DATA lines. You can see that each object has a number in front of it. This is the number of the room the object will start in.

Some of the objects have zeros in front of them. This just means they will not appear in any room at the start. You can think of room zero as a sort of store room for your objects when you're not using them.

Notice that objects are not always things you can pick up and use. They can do other things. For instance, the red light in the air lock will eventually be changed to the green light.

The objects and room numbers are in DATA lines. Your computer now needs to READ them.

This is done in the same way as we did with the words. Type in lines 1080 to 1140.

These are now part of the setting up routine. Every time you run the program the objects will be put in the correct rooms. The array *OBJECT$* contains the descriptions of the objects. *OBJROOM* holds the room numbers. So *OBJECT$(1)* contains laser rifle and *OBJROOM(1)* contains 2, the room the laser starts in.

Like the room numbers, each object is numbered by its place in the list. For example, the laser is number 1, the space suit number 4 and the fixed cable number 14.

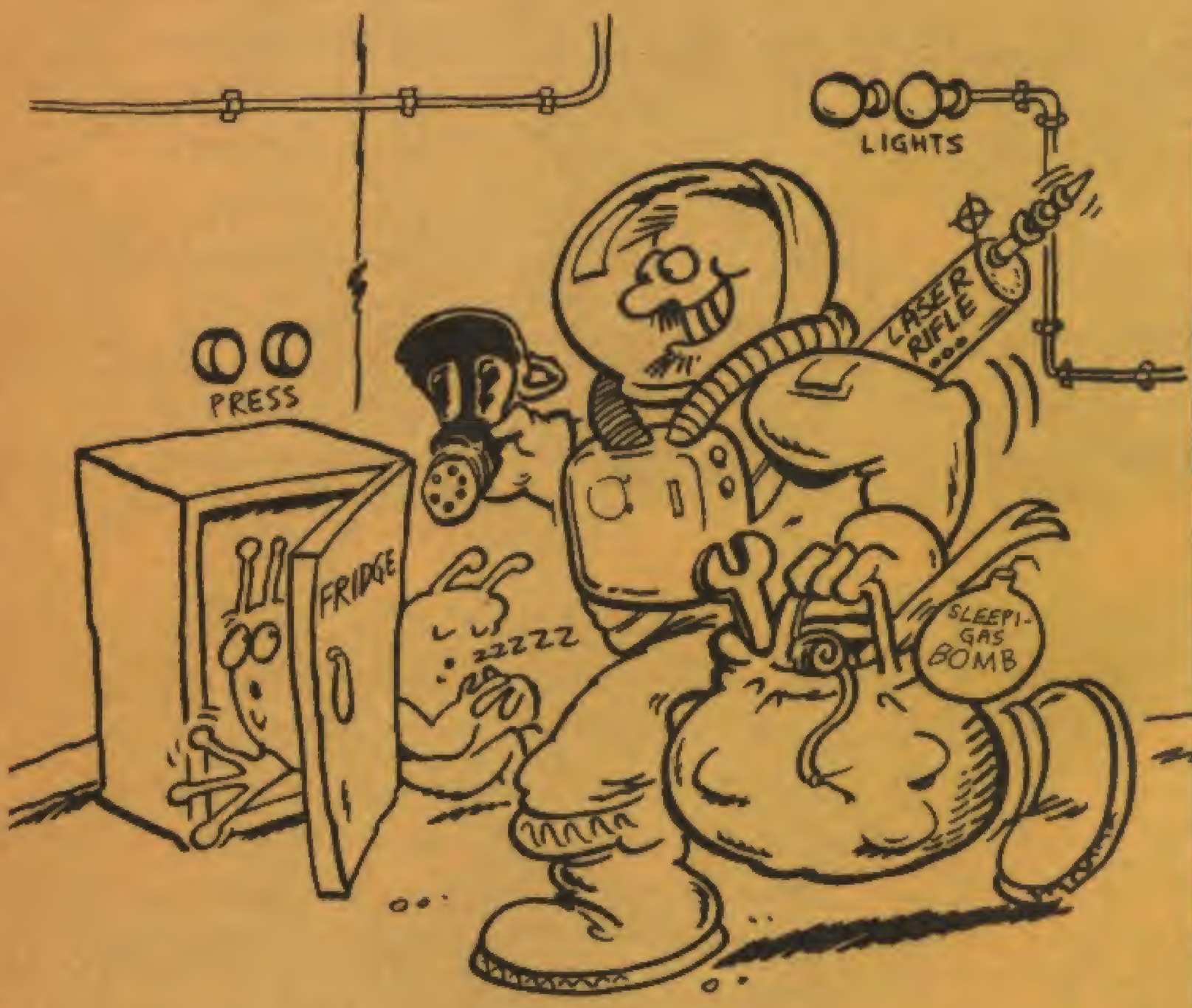
Next we want to display the objects as part of the

ct of an

Add a new dimension to your adventure by placing things to pick up

PART 3

enture!



room description. Lines 2050 to 2080 do this. So type them in.

The lines search the *OBJROOM* array. As they do they check if any of the room numbers match the one you are in. If they do the description of the object is printed underneath the room description.

Now try RUNning the program. You'll see our objects in your adventure. Why not put in some of your own?

You could put teachers into classrooms, tools into sheds or dragons into caves. Just use your imagination and scatter the map with all sorts of things!

● At the moment the objects are just things in the rooms. Next month we'll find out how to carry them around. Then they'll really become part of the adventure!

A CHALLENGE

So far your program displays the objects in a room. This is fine as long as there are some objects there!

If there aren't it prints:

```
You can see :
```

Can you alter the display routine yourself? It shouldn't print anything at all if there are no objects in the room. Or perhaps you could make it print:

```
You can see : nothing interesting
```

IS YOUR COMPUTER HERE?

This program works on a BBC, Archimedes, Electron, CPC, Atari ST(Stos), Amiga and PC(GW-Basic). It will not work on a C64/128 or Spectrum.

```
  35 IF W(1)>=1 and W(1)<=10 GO SUB 271
0:FOR MORE THAN 10 MOVEMENT WORDS (NOT RO
OMS AS STATED IN APRIL) CHANGE THE 10 IN
 THIS LINE.
 1070 REM NOW SORT OUT THE OBJECTS - FIR
ST COUNT THEM
 1080 RESTORE 6000
 1085 O=0:REM THIS WILL BE THE NUMBER OF
 OBJECTS
 1090 READX,X$:REM THESE VARIABLES ARE J
UST FOR COUNTING
 1100 IF X>-1 O=O+1:GOTO 1090:REM NOT TH
E END OF THE LIST?
 1110 DIM OBJROOM(O):DIM OBJECT$(O)
 1120 REM NOW PUT THE OBJECTS INTO AN AR
RAY
 1130 RESTORE 6000:REM BACK TO THE START
 OF THE OBJECT LIST
 1140 FOR X=1 TO O:READ OBJROOM(X),OBJEC
T$(X):NEXT
 2040 REM NOW TELL US WHAT YOU CAN SEE
 2050 PRINT:PRINT "You can see :";
 2060 FOR X=1 TO O
 2070 IF OBJROOM(X)=ROOM PRINTTAB(14);OB
JECT$(X)
 2080 NEXT X:PRINT
 5990 REM OBJECTS START HERE
 6000 DATA 2,lazer rifle
 6010 DATA 4,sleepi-gas bomb
 6020 DATA 1,red button
 6030 DATA 1,green button
 6040 DATA 0,space suit
 6050 DATA 19,spanner
 6060 DATA 18,crow-bar
 6070 DATA 8,red light
 6080 DATA 0,green light
 6090 DATA 13,hungry alien
 6100 DATA 0,sleeping alien
 6110 DATA 12,gas mask
 6120 DATA 16, loose cable
 6130 DATA 0,fixed cable
 6300 DATA -1,X
```

When the rain drops in ...

No.4

Have you got the bottle to chart the rainfall with the Let's Compute! rain gauge?

Pete's Projects are always simple to make. But this month's is the easiest yet.

It's a rain gauge. And it's just made from a plastic bottle and a ruler.

What's your computer got to do with that? Well what better way to keep records than use it?

The program we've given here draws a barchart from your readings. But you can use other programs to process your results.

You could, for example, feed them into a spreadsheet – just like the real weathermen do!

Once you've made the gauge take readings at regular intervals – say daily. Then you can compare yours with the ones that are often shown on TV.

MAKING THE RAIN GAUGE

First you need an empty plastic bottle. It must have straight sides like the one in our picture.

Now cut the top part off to form a funnel. It's a good idea to get your parents to help with that.

Turn the funnel you have made upside down. Push it into the other part of the bottle to make your gauge.

Now tape a ruler to the side of the gauge. The zero of the ruler should be above any bumps or shapes at the bottom of the bottle.

Pour water into the gauge up to the zero mark on the ruler. It's now ready to use.

Put it in your garden. Try to find a fairly shaded place so the rain doesn't evaporate. Now it's just a matter waiting. When it rains the gauge will collect it. You can check the depth by just reading the ruler.

WHY USE A FUNNEL?

At first it may seem pointless having a funnel into the base. After all, rain would fall into the bottom half of a bottle anyway.

The purpose of the funnel is to stop the water in the gauge evaporating.

As an experiment, make another gauge without the funnel. Stand it in your garden next to the one that has one.Check if the readings from both are the same.

USING YOUR COMPUTER

If you want to convert your numbers into a barchart here's a program to do it. Type it in, SAVE it and RUN it.

You'll first be asked *How many readings?* The most you are allowed to type in is about 35 – the exact number depends on which type of computer you have.

Next you type in the readings. One after each question mark that appears.

The biggest number that will be correctly displayed is about 25. If you type a larger one the biggest bar that will fit will be drawn. Once you've typed in all your readings your barchart will be drawn. If there's enough room a gap will be left between each bar.

The numbers up the side are automatically chosen so the bars are as tall as possible.

Note that, although this program is intended to be used with Pete's rain gauge it has other uses. With it you can draw barcharts of any numbers you want such as the how much money you spend each day.

```
  10 REM PETE'S PROJECT BAR CHART
  20 H=30:W=40:VDU23,255,255,255,255,255,2
55,255,255,255:C$=CHR$(255):MODE4
  30 PRINT "HOW MANY READINGS";:INPUT D
  40 IF D>W-5 THEN PRINT "TOO BIG":GOTO 30
  50 LET E=1:IF D<(W-5)/2 THEN LET E=2
  60 DIM R(D):LET L=(W-D)/2
  70 LET M=0:FOR I = 1 TO D
  80 PRINT "READING ";I;:INPUT R(I)
  90 IF R(I)>H-3 THEN LET R(I)=H-3
 100 IF R(I)>M THEN LET M=R(I)
 110 NEXT I
 120 LET S=1:IF M<(H-4)/2 THEN LET S=0.5
 130 IF M<(H-4)/4 THEN LET S=0.25
 140 FOR I=1 TO D:LET R(I)=INT(R(I)*(1/S))
:NEXT I
 150 CLS:PRINT
 160 PRINT"THE LET'S COMPUTE! RAINFALL CHA
RT"
 170 FOR I=H TO 4 STEP -4
 180 LET X=L-2-D*(E-1):LET Y=I:LET Z$=STR$
(ABS(I-H)*S):GOSUB 260
 190 NEXT I
 200 FOR I=1 TO D
 210 IF R(I)<=0 THEN GOTO 240
 220 LET X=I*E+L-D*(E-1):LET Y=H-R(I):LET
Z$=C$:GOSUB 260
 230 LET R(I)=R(I)-1:GOTO 210
 240 NEXT I
 250 PRINT:END
 260 PRINT TAB(X,Y)Z$:RETURN
```

IS YOUR COMPUTER HERE?

BBC/Electron/Archimedes

The program works as shown.

Amiga

Change these lines:

```
  20 LET H=20:LET W=80:LET C$=" ":COLOR 1
,2:CLS
 220 LET X=I*E+L-D*(E-1):LET Y=H-R(I):LET
Z$=C$:COLOR,1:GOSUB 260
 260 LOCATE Y+1,X+1:PRINT Z$:COLOR 1,2:RE
TURN
```

PC (GW-Basic)

Change these lines:

```
  20 LET H=20:LET W=80:LET C$=CHR$(219):CL
S
 260 LOCATE Y+1,X+1:PRINT Z$:RETURN
```

Amstrad CPC

Change these lines:

```
  20 H=20:W=80:C$=CHR$(143):MODE 2
 260 LOCATE X,Y:PRINT Z$:RETURN
```

ST(Stos)

Change these lines:

```
  20 MODE 1:KEY OFF:CURS OFF:HIDE:H=20:W=
80:C$=" "
 220 LET X=I*E+L-D*(E-1):LET Y=H-R(I):LET
Z$=C$:PAPER 15:GOSUB 260
 260 LOCATE X,Y:PRINT Z$:PAPER 0:RETURN
```

Spectrum

Change these lines:

```
  20 LET H=20:LET W=32:LET C$=CHR$(143):C
LS
 250 PRINT:STOP
 260 PRINT AT Y,X;Z$:RETURN
```

Commodore 64/128

Change these lines:

```
  20 H=20:W=40:C$=CHR$(18)+" ":PRINT CHR$(
147)
 150 PRINT CHR$(147);:PRINT
 260 POKE 211,X:POKE 214,Y:SYS 58732:P
RINT Z$;:RETURN
```

NEXT MONTH: Make Pete's nuclear reactor puzzle

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That clever program wasn't all it seemed to be!

Last month we said that it would be really useful to have a program that doubles your computer's memory. And we printed the program – it's shown again on the right.

We didn't actually say that this program doubles the memory. It WAS the April issue after all!

So you typed it in? Don't worry! It wasn't such a waste of time after all. You can now use it to have some fun with your pals.

At the bottom of this page we explain how the program works. By changing the DATA numbers starting at Line 100 you can make it print ANY message you like.

The numbers are called the Ascii codes of the letters. Every letter has a number to represent it. Most computer instruction books give a list of the letters and their numbers.

But as usual, *Let's Compute!*. makes it easy. Here's a program to print the Ascii codes for you whenever you like:

```
10 INPUT A$:PRINT ASC(A$):GOTO 10
```

On a Spectrum use CODE in place of ASC.

You'll notice that there are a lot of 13s in our DATA. These make your computer start a new line of type.

Try other numbers in the range 0 to 255. For example 12. On most computers that clears the screen.

Note that the last number in the DATA must be 99. Line 30 checks for it. More DATA is read until it is found. You could change it to 999 if you want to use code 99 anywhere else.

You can also make the program *interactive*. That means someone else can type the codes in and find out the secret message.

To do that change Line 20 to:

```
20 LET M=M+1:INPUT L(M)
```

If you make this change, Lines 100 to 200 now do nothing. Take them out if you want.

When the program is run, just type in your numbers. Type each one after a question mark appears – don't forget to press Return each time.

When you have typed them all in type 99. Your message will be displayed.

You've now got the basis of a coding and a decoding program. And you can go further. You can make the code harder to crack.

For example, you can add one to each number. Then change line 70 to take it off automatically:

```
70 PRINT CHR$(L(T)-1);
```

● It's up to you to think of more sneaky tricks to make the code harder to crack.

```
10 LET M=0:DIM L(100)
20 LET M=M+1:READ L(M)
30 IF L(M)<>99 THEN GOTO 20
40 LET T=M*2:REM ** DOUBLES IT!!
50 FOR T=1 TO M-1
60 IF L(T)=13 THEN PRINT:GOTO 80
70 PRINT CHR$(L(T));
80 NEXT T
90 REM THE SECRET IS IN THE NUMBERS
100 DATA 13,73,84,32,73,83,32,73,77
110 DATA 80,79,83,83,73,66,76,69,32
120 DATA 84,79,32,87,82,73,84,69,32
130 DATA 65,13,80,82,79,71,82,65,77
140 DATA 32,84,79,32,68,79,85,66,76
150 DATA 69,32,84,72,69,32,77,69,77
160 DATA 79,82,89,46,13,89,79,85,32
170 DATA 72,65,86,69,32,66,69,69,78
180 DATA 32,84,82,73,67,75,69,68,46
190 DATA 13,65,80,82,73,76,32,70,79
200 DATA 79,76,33,13,13,99
```

Were YOU fooled?

HOW THE PROGRAM WORKS . . .

Lines 10 to 30 read in all the numbers. They are stored in the computer memory locations L(1), L(2), L(3), and so on.

Line 40 does nothing. It was put there to make you think something was being doubled. Miss it out now.

Lines 50 to 80 print out the message.

Line 90 is a message for you. Your computer doesn't need it so you can miss it out if you want.

Lines 100 to 200 contain the numbers that will be printed as the message. Change them if you want. Remember, you must have a 99 as the last one.

But CAN memory be doubled?

It's impossible for any program to double the memory of a computer. Instead you need more memory chips.

But programs can sometimes be written to make it seem as if your computer has more memory. They are completely different for different kinds of computer.

Your computer reserves some of its memory for controlling disc drives and tape units. This is only needed for short periods.

For instance, say you want to play a game. Your computer uses some of its memory to work the tape or disc unit to load it. But once that's done it doesn't need it any more.

A program can be written so that the extra memory can be used for something else. It could be used to store the high score table.

So the useful memory can be extended by clever programming. But it can't be doubled. A short program like the one we printed last month couldn't possibly do it.

So, if you were fooled, watch out next April!

```
  10 REM PACMAN
  20 CLS:VDU 23;8202;0;0;0;:*FX11
  30 DIM M$(18,17):DIM G(3,4):DIM G$(3)
:LET PWRC=20
  40 LET PWRTIM=0:LET TMR=0:LET SC=0:LE
T L1=3:LET L2=3:GOSUB 980
  50 GOSUB 1070
  60 GOSUB 760:GOSUB 780:GOSUB 220
  70 GOSUB 970:IF PWRTIM-TMR>0 THEN LET
 TX=9:LET TY=8
  80 IF PWRTIM-TMR<0 THEN LET TX=PX:LET
 TY=PY
  90 GOSUB 300
 100 LET A$=STR$(SC):LET LSC=LEN(A$):LE
T Q=32-LSC:LET Z=1
 110 GOSUB 940
 120 GOSUB 220
 130 LET Q=31:LET Z=3:LET A$=STR$(L1):G
OSUB 940
 140 IF FOOD>0 AND L1=L2 THEN GOTO 60
 150 IF L1<>L2 THEN LET L2=L2-1:GOSUB 1
070:GOSUB 1110
 160 IF FOOD=0 THEN GOSUB 980
 170 IF L1>0 THEN GOTO 50
 180 GOSUB 950:IF K$<>"" THEN GOTO 180
 190 LET Q=24:LET Z=10:LET A$="GAME OVE
R":GOSUB 940
 200 LET Z=12:LET A$="PRESS ANY KEY":GO
SUB 940
 210 GOTO 40
 220 LET HIT=0:FOR L=1 TO 3
 230 IF G(L,1)=PX AND G(L,2)=PY AND TMR
>PWRTIM AND G(L,4)=1 THEN LET HIT=1
 240 IF G(L,1)=PX AND G(L,2)=PY AND TMR
<PWRTIM AND G(L,4)=2 THEN GOTO 260
 250 GOTO 270
 260 LET G(L,4)=3:LET G$(L)=CHR$(34):LE
T SC=SC+150
 270 NEXT L
 280 IF HIT=1 THEN LET L1=L1-1
 290 RETURN
 300 FOR L=1 TO 3
 310 LET X=G(L,1):LET Y=G(L,2):LET GD=G
(L,3):LET GC=G(L,4)
 320 LET Q=X:LET Z=Y:LET A$=M$(X,Y):GOS
UB 940
 330 IF G(L,4)=3 THEN LET TX=9:LET TY=8
:IF X=9 AND Y=7 THEN LET GD=2:GOTO 350
 340 GOSUB 450
 350 IF GD=1 OR GD=3 THEN LET X=X+(GD-2
)
 360 IF GD=0 OR GD=2 THEN LET Y=Y+(GD-1
)
 370 LET XX=X:IF XX=1 THEN LET X=16
 380 IF XX=17 THEN LET X=2
 390 IF G(L,4)=3 AND G(L,1)=9 AND G(L,2
)=9 THEN LET G$(L)="*":LET GC=1
 400 IF G(L,4)=2 AND TMR>PWRTIM THEN LE
T GC=1:LET G$(L)="*"
 410 LET Q=X:LET Z=Y:LET A$=G$(L):GOSUB
 940
 420 LET G(L,1)=X:LET G(L,2)=Y:LET G(L,
3)=GD:LET G(L,4)=GC
 430 NEXT L
 440 RETURN
 450 GOSUB 760:LET N=RND(6)
 460 LET XX=-2:IF GD<2 THEN LET XX=2
 470 LET FF=0:IF GD=1 OR GD=3 THEN LET
FF=1
 480 IF FF=1 THEN IF M$(X+(GD-2),Y)="#"
AND U$="#" AND D$="#" THEN LET GD=GD+XX:
RETURN
 490 IF FF=0 THEN IF M$(X,Y+(GD-1))="#"
AND L$="#" AND R$="#" THEN LET GD=GD+XX:
RETURN
 500 IF FF=1 AND U$="#" AND D$="#" THEN
 RETURN
 510 IF FF=0 AND L$="#" AND R$="#" THEN
 RETURN
 520 IF GD=0 AND U$="#" THEN GOSUB 640:
RETURN
 530 IF GD=1 AND L$="#" THEN GOSUB 700:
RETURN
 540 IF GD=2 AND D$="#" THEN GOSUB 640:
RETURN
 550 IF GD=3 AND R$="#" THEN GOSUB 700:
RETURN
 560 IF N>4 THEN RETURN
 570 IF GD=1 OR GD=3 THEN GOSUB 610:RET
URN
 580 IF L$="#" AND TX>X THEN LET GD=3:R
ETURN
 590 IF R$="#" AND TX<X THEN LET GD=1
 600 RETURN
 610 IF U$="#" AND TY>Y THEN LET GD=2:R
ETURN
 620 IF D$="#" AND(TY<Y OR X=9) THEN LE
T GD=0
 630 RETURN
 640 IF L$="#" THEN LET GD=3:RETURN
 650 IF R$="#" THEN LET GD=1:RETURN
 660 IF TX>X AND N<5 THEN LET GD=3:RETU
RN
 670 IF TX<=X AND N<5 THEN LET GD=1:RET
URN
 680 LET GD=3:IF N=5 THEN LET GD=1
 690 RETURN
 700 IF U$="#" THEN LET GD=2:RETURN
 710 IF D$="#" THEN LET GD=0:RETURN
 720 IF TY>Y AND N<5 THEN LET GD=2:RETU
RN
 730 IF TY<Y AND N<5 THEN LET GD=0:RETU
RN
 740 LET GD=0:IF N=5 THEN LET GD=2
 750 RETURN
 760 LET O$=M$(X,Y):LET U$=M$(X,Y-1):LE
T D$=M$(X,Y+1):LET L$=M$(X-1,Y)
 770 LET R$=M$(X+1,Y):RETURN
 780 GOSUB 950:IF K$<>"" THEN LET C$=K$
 790 LET X=PX:LET Y=PY:GOSUB 760
 800 LET Q=PX:LET Z=PY:LET A$=" ":GOSUB
 940:LET M$(PX,PY)=" "
 810 IF C$="A" AND U$<>"#" THEN LET PY=
PY-1
 820 IF C$="Z" AND D$<>"#" THEN LET PY=
PY+1
 830 IF C$="N" AND L$<>"#" THEN LET PX=
PX-1
 840 IF C$="M" AND R$<>"#" THEN LET PX=
PX+1
 850 IF O$="." THEN LET FOOD=FOOD-1:LET
 SC=SC+10
 860 IF O$<>"+" THEN GOTO 900
 870 LET FOOD=FOOD-1:LET SC=SC+100:LET
PWRTIM=TMR+PWRC
 880 FOR L=1 TO 3:IF G$(L)="*" THEN LET
 G$(L)="0":LET G(L,4)=2
 890 NEXT L
 900 LET XX=PX:IF XX=1 THEN LET PX=16
 910 IF XX=17 THEN LET PX=2
 920 LET Q=PX:LET Z=PY:LET A$="C":GOSUB
940
 930 RETURN
 940 PRINT TAB(Q,Z);A$;:RETURN
 950 LET K$=INKEY$(0):RETURN
 960 RETURN
 970 LET TMR=TMR+1:RETURN
 980 RESTORE
 990 FOR A=1 TO 16
1000 READ A$:LET Q=1:LET Z=A:GOSUB 940
1010 FOR B=1 TO 17:LET M$(B,A)=MID$(A$,
B,1):NEXT B
1020 NEXT A
1030 LET Q=20:LET Z=1:LET A$="Score:
     ":GOSUB 940
1040 LET Z=3:LET A$="Lives:":GOSUB 940
1050 LET FOOD=127
1060 RETURN
1070 FOR L=1 TO 3:LET G(L,1)=L+7:LET G(
L,2)=9:LET G(L,3)=0:LET G(L,4)=1: LET G$
(L)="*":NEXT L
1080 LET PX=9:LET PY=13:LET X=PX:LET Y=
PY
1090 LET C$=""
1100 RETURN
1110 FOR Z=1 TO 16:FOR Q=1 TO 17:LET A$
=M$(Q,Z):GOSUB 940:NEXT Q:NEXT Z:RETURN
1120 DATA "#################"
1130 DATA "#+.....#.....+#"
1140 DATA "#.#.###.#.###.#.#"
1150 DATA "#.#.#...#...#.#.#"
1160 DATA "#.....#.#.#.....#"
1170 DATA "#.#####.#.#####.#"
1180 DATA "#...............#"
1190 DATA "###.#.## ##.#.###"
1200 DATA " ...#.#   #.#... "
1210 DATA "###.#.#####.#.###"
1220 DATA "#...............#"
1230 DATA "#.#.####.####.#.#"
1240 DATA "#.#...#. .#...#.#"
1250 DATA "#.###.#.#.#.###.#"
1260 DATA "#+.....#.....+#"
1270 DATA "#################"
```

IS YOUR COMPUTER HERE?

BBC and Electron

The program works as shown

Archimedes and BBC A3000

Change these lines:

```
 940 TIME=0:PRINT TAB(Q,Z);A$;:REPEAT U
NTIL TIME>4:RETURN:REM Change the 4 to s
peed up or slow down.
```

Amiga and PC(GW-Basic)

Change these lines:

```
  10 SCREEN 1:RANDOMIZE TIMER:CLS
 450 GOSUB 760:LET N=INT(RND*6)
 940 LOCATE Z+1,Q+1:PRINT A$:RETURN
 950 LET K$=INKEY$:RETURN
```

ST(STOS)

Change these lines:

```
  10 MODE 1:KEY OFF:CURS OFF:HIDE
 450 GOSUB 760:LET N=RND(6)
 940 LOCATE Q, Z:PRINT A$:RETURN
 950 LET K$=INKEY$:RETURN
```

Commodore 64

Leave out all the words: LET
Change these lines:

```
  10 PRINT CHR$(147);:X=RND(-TI)
 450 GOSUB 760:LET N=INT(RND(0)*6+1)
 940 POKE 211,Q+1:POKE 214,Z+1:SYS 5873
2:PRINT A$;:RETURN
 950 GET K$:RETURN
```

Amstrad CPC

Change these lines:

```
  10 CLS:RANDOMIZE TIME
 450 GOSUB 760:LET N=INT(6*RND+1)
 940 LOCATE Q+1,Z+1:PRINT A$:RETURN
 950 LET K$=INKEY$:RETURN
```

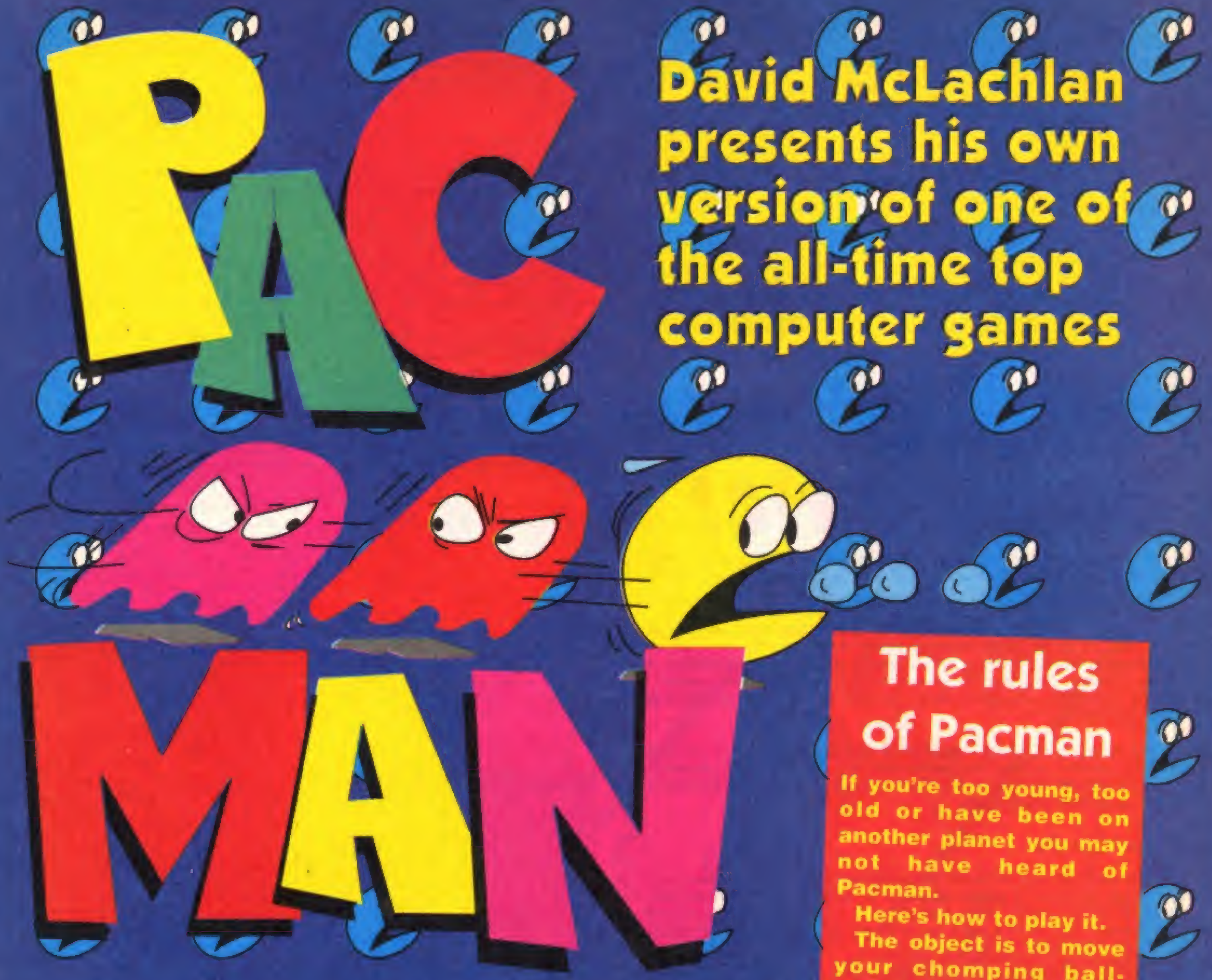
Spectrum

Change these lines:

```
  10 CLS:RANDOMIZE
 450 GOSUB 760:LET N=INT(6*RND+1)
 940 PRINT AT Z,Q;A$;:RETURN
 950 LET K$=INKEY$:RETURN
1010 FOR B=1 TO 17:LET M$(B,A)=A$(B):NE
XT B
```

PACMAN

David McLachlan presents his own version of one of the all-time top computer games



The classic Space Invaders started life in pubs and arcades. It was a hit long before computers became popular.

Then along came another game which was to knock it for six.

It's name was Pacman. And it became an instant success – the very first chase-around-the-maze game. Over the years there have been many copies of the original idea.

This special *Let's Compute!* version will run on most home computers. The changes needed for the popular ones are given. Pacman is represented by a letter C. The ghosts are asterisks – (*).

When you pick up the special power pill – (+) – the ghosts become harmless. They show this by changing into a letter O.

While they are like this you can eat them. If you do they change into quotes – (") – and return to their den. They are then reborn and chase you again.

The rules of Pacman

If you're too young, too old or have been on another planet you may not have heard of Pacman.

Here's how to play it.

The object is to move your chomping ball-shaped man around the maze. You munch pills and bonus items as you go along.

While you're doing it, stay out of the way of three ghosts! They'll continuously harrass you. Contact with one means certain death.

Try to pick up a special power pill. There's one in each of the four corners of the maze. The ghosts will then become harmless. They're now edible and worth points. Eat them quick! They soon turn back to normal.

Keys to use

Up	A
Down	Z
Left	N
Right	M

Make sure caps lock or shift lock is pressed

Sound advice

There are lots of things you can do to make this into YOUR version of Pacman. You could add colour, use different shapes, add extra objects to pick up or put some sounds into the program. Try putting in a click sound each time a pill is eaten. You could also add an explosion each time Pacman is eaten by a ghost. An increasing tone while the ghosts are edible gives you an idea how long you've got left. Try to put that in too!

CONTEST TIME

MORE NOISE FOR LETS COMPUTE! CLUB MEMBERS

Sounds fantastic!

Have you ever wanted to make the rafters shake when you play your favourite game? Did you think that you would never be able to get louder sound effects from your computer?

Well, if you've got an Electron, BBC, Archimedes, ST, Amiga or CPC this is just what you've been waiting for. It's Siren Software's Sound Blaster. It consists of a small amplifier, a power supply, two loudspeakers and a pair of headphones – letting you make as much sound as you like without disturbing the household.

Sound Blaster is easily connected and there are two volume controls on the wedge shaped amplifier – one for each speaker. It costs £52.99 but there are three going as prizes to members of the *Let's Compute!* Club.

What to do

Simply answer the following four questions. If you have any problems look in an encyclopaedia or ask your music teacher. Then fill in the entry form and send it to us to arrive no later than March 29. Don't forget to put your name and membership number on the form.

THE QUESTIONS

1 What was Beethoven's first name?

2 Which dance is associated with Strauss?

3 Flamenco is a style of music from which country?

4 What type of instrument is a snare?

Entry Form

Name .....

Address.....

.....

.....

.....

Postcode .....Age .....

Membership Number

.....

Answers

1.....

2.....

3.....

4.....

My computer is *(please tick)*:

ST .....☐ CPC .....☐
Amiga .....☐ BBC .....☐
Electron .....☐ Archimedes ☐

Now send this to:
Sound Blaster Contest, *Let's Compute*, Europa House, Adlington Park, Macclesfield SK10 4NP.

PARENTS & TEACHERS

Computing should be fun. The aim of Let's Compute! is to make sure that youngsters get as much pleasure as they can from their computers – while they learn at the same time.

Programming is part of the National Curriculum, and the simple games and other programs in *Let's Compute! are an ideal starting point for learning what computing is all about.*

Once the programs are typed in they can easily be modified by the youngsters themselves. They should be encouraged to add colour and sound, change the graphics, add a high score table and adapt the game in many other ways so that it reflects their own ideas and their own personality.

Investigation is another important element of the National Curriculum. Most of our pages are designed with this in mind and point children in the right direction to discover things for themselves. Below we explain what some of the articles are about and give ideas of further investigations that children should be encouraged to do for themselves.

ADVENTURES .. Page 19

Nothing is more satisfying than writing your own big program and seeing others enjoy using it. The Create an Adventure series shows children the easy way to write a complete adventure.

Apart from the fun and programming aspects of this article, it offers educational openings in several subjects. For example, by changing the map to a real place it can be used in Geography. Altering the words to a foreign language can make this program a great teaching aid for languages.

ROM AND RAM .. Page 11

Rom is trying to learn about computers and Ram is teaching him. In following their exploits children learn along with Rom.

This month they show Rum – Rom's nephew how to SAVE and LOAD computer programs.

SAFE SCIENTIST .. Page 24

The Safe Scientist lets children use their computer to simulate experiments which in real life are too difficult, dangerous or expensive.

This month the aim is to investigate magnetism. The program given is a simulation of two magnets coming together.

A National Curriculum attainment target is devoted to electricity and magnetism. The rule discovered from this program is one of the fundamental concepts.

It is also what Information Technology teachers call a computer model. This means that a real situation has been copied onto the computer.

This introduces us to another area of the National Curriculum, Information Technology Capability. That just really means being able to use a computer sensibly.

Children should be able to use a computer model to make predictions. The magnet program lets them do just that.

GUESS THE LETTER .. Page 7

Schools and clubs have always tried to raise extra cash at events like an Annual Fair. In this series we offer some ideas showing how computers can be used to help.

This month's program is based on a popular computer game where the computer *thinks of a number* and you have to guess what it is.

The *Let's Compute!* version is different! It uses letters instead of numbers. The article explains how this simple concept can produce some useful income.

The idea and program came from Colin Markwell, a 13 year old reader. If your child can write a program you think others would like to see make sure he or she sends it to us.

There are many ways children can enhance this program. They can make it a more exciting money-making attraction by adding colour, sound, more messages and so on.

PROGRAM DOCTOR .. Page 17

Each month Doc deals with some of the most common mistakes that people make – either in the program structure itself or in the ideas behind what a program does.

This month the teacher pays another visit to the Doc. He helps him to improve last month's educational software.

Children can type in the short listing first, try it, then add the additional lines and see what difference they make.

While Doc has improved the teacher's program there's still a lot more that can be done. Children can try to further improve it themselves.

PETE'S PROJECT .. Page 20

In this series of articles computing and practical skills come together. This month the project is to make a rain gauge.

A short computer program is used to draw a barchart of the readings. Children should be encouraged to feed the results into other software as well. For example, they can create a spreadsheet from them.

LOGO LOWDOWN .. Page 35

Many teachers prefer the Logo language to Basic. And our Logo Lowdown turtles aim to make it fun.

Children should try the programs given and see what happens. Then they should try to change them to do something slightly different. The graphics of Logo show the effect of the change as soon as the program is run. It's easy to learn enough Logo to draw some interesting shapes. And by combining our series with a little trial and error children will soon be creating amazing displays for themselves.

Were you fooled?.. Page 23

Last month we said it would be a good idea to have more computer memory. And we published a program. We didn't say the program actually gave more memory. It was an April Fool joke – but not a complete waste of time.

In this month's article we explain why a program just couldn't be written to do that job. Any child who typed it in should have learnt this lesson.

We also explain what the program really does and how it works by Ascii codes. We then show how it can be changed into a secret code program. Children should be encouraged to change the formula in the program to produce their own codes.

PACMAN.. Page 24

At first this may seem like just another game. But once the child has it running he or she should be encouraged to make it into their own game. Some ideas they could try:

- Add sounds
- Change the characters. They could try defining their own on most computers.

EDUCATION SECRETARY GETS TOUGH OVER FALLING SCHOOL STANDARDS

Bad spelling to cost pupils exam marks

Passing an exam . . . applying for a job . . . whatever you want to do in life you need to be able to SPELL!

There's mounting alarm about the appalling standards of spelling among Britain's schoolchildren. MPs, teachers, parents and employers are all stressing the vital importance of being able to spell correctly.

Yet most homes have what could be the ideal means of teaching spelling – the computer.

Instead of zapping aliens it could be turned into the best weapon of all to deal a body blow to bad spelling. With the help of a brilliant new software package that not only makes practising spelling painless but also loads of fun as well.

SPELL! is unique. It lets the user learn at his or her own pace. They can take as long as they like – or take on the computer in a high-speed challenge!

And this one package is ideal for everyone – with the lowest age group suitable for under-5s, while the more advanced words will stretch even the most able students.

It includes five different tests, each making use of more than 5,000 words – so much variety that you'll never get bored.

- **5 DIFFERENT TESTS**
- **OVER 5,000 WORDS**
- **FOR AGES 5 TO 15**

FIVE ways to improve your spelling

In a Flash: *Read the word as it flashes on the screen, then type it in. For practice runs, the word is left on the screen as it is typed.*

Rocket: *Hidden words have to be discovered in this hi-tech version of the old favourite Hangman. If they are guessed correctly the rocket will blast-off. Fail and all that's left is a load of scrap.*

Lunar Buggy: *Type fast for fun. The aim is to key in the word as it's pulled across the screen by the buggy. It has to be completed before the letters drop down a crater.*

All Mixed Up: *Jumbled letters have to be sorted out to find the scrambled word. To help beginners – and anyone else who is stuck – clues can be obtained at the press of a key.*

Conveyor Belt: *Words pass by on the screen and have to be remembered. Then they must be typed in – spelt correctly. This is a challenging test of both spelling and memory.*

All the programs have several options for extra flexibility – like a timer with on/off option to add that extra challenge.

In addition to using the 5,000 words provided, parents – or children – can create their own word lists for using with SPELL! This makes the package ideal for practising those hard-to-learn words, or for "Learn these spellings" homework.

SPELL! only costs £8.95. It is now available on disc and tape for six of the most popular home computers and can be ordered on the form below.

SPELL!

Please send me a *SPELL!* package for my computer
(Tick as appropriate)

Name .....

Signed .....

Address .....

.....Post code.....

Daytime phone number in case of queries .....

I wish to pay by:

☐ Cheque or postal order payable to Database Publications

☐ Credit card No: Exp. date /

☐ Compact/Archi/Elk (3.5" disc) 3612 ☐ BBC/Elk (5.25" 40 T) 3610 ☐ BBC/Elk (5.25" 80 T) 3611 ☐ BBC/Elk (tape) 3617 ☐ Amiga (disc) 3614 ☐ ST (disc) 3613 ☐ PC (3.5") 3616 ☐ PC (5.25") 3615

TO: Database Direct, FREEPOST, Ellesmere Port, South Wirrall L65 3EB *No stamp need if posted in UK*

PHONE ORDERS: 051-357 1275

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LET'S COMPUTE! CLUB

Subscribe at the same time – and Save £2!

Here's YOUR chance to become a member of the most exclusive club in computing – and save money too!

If you become a subscriber to ***Let's Compute!*** by using the form below, you can also join the Club for just £4 (saving £2).

As soon as we've registered your name we'll send you a giant package of gifts to help you make the most of your computer.

This is the BBC version – other versions will vary

In addition to your own Gold Membership Card you'll also receive lots of software on an action-packed disc or tape (don't forget to state which kind you require), PLUS ● notepad, ruler, pencil and rubber ● stickers ● stylish hat and badge ● an incredible £200 worth of money-saving vouchers! And that's not all! As a club member you'll be entitled to take part in exclusive competitions and special events with super prizes.

Make sure YOU don't miss out. Fill in the form below and send it today!

(Should you prefer to buy* Let's Compute! *from your newsagent each month, you can still join the Club by paying the normal joining fee of £6. You can do this by filling in the appropriate part of the form below.)

YES PLEASE! *Tick as required*

☐ 3101 Please send me the next 12 issues of *Let's Compute!* for the price of £14 (including postage and packing)

☐ 3112 I'd also like to become a founder member of the *Let's Compute!* Club for the special price of £4 (instead of the regular £6) – so please send me the bumper Club pack with my first issue.

☐ 3113 I'll order *Let's Compute!* from my newsagent, but I'd still like to join the Club and receive my bumper member's pack for £6.

Name .....

Signed .....

Address .....

.....

Post code ..... Age .....

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TO: Database Direct, FREEPOST, Ellesmere Port, South Wirrall L65 3EB

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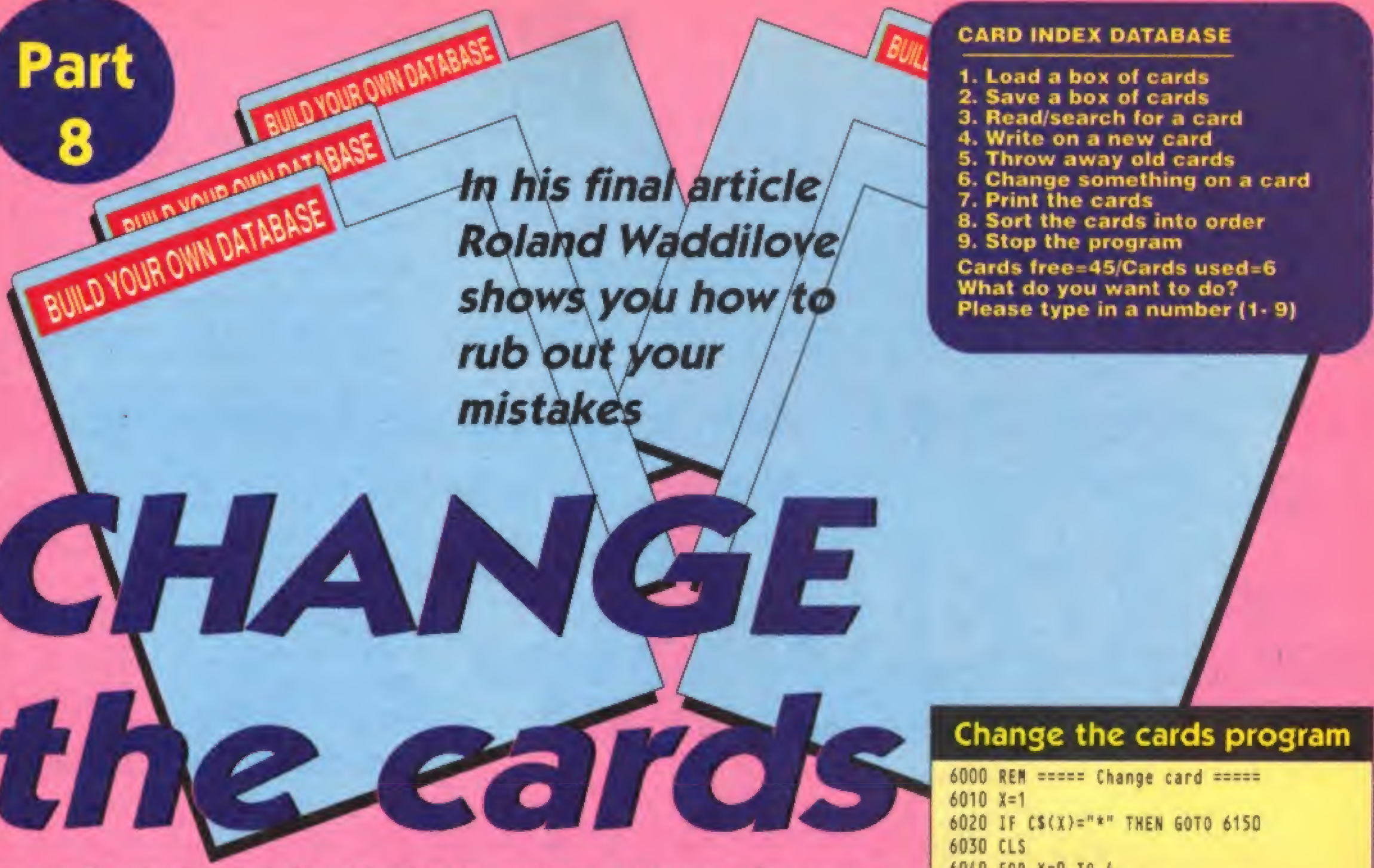
Please send my software in this format

☐ Compact/Archi/Elk (3.5" disc) 3050 ☐ BBC/Elk (5.25" 40 T) 3051 ☐ BBC/Elk (5.25" 80 T) 3052 ☐ BBC/Elk (tape) 3053 ☐ Amiga (disc) 3055 ☐ CPC (disc) 3056 ☐ CPC (tape) 3057

☐ Spectrum (tape) 3060 ☐ Spectrum (disc) 3061 ☐ C64/128 (disc) 3062 ☐ C64/128 (tape) 3063 ☐ ST (disc) 3054 ☐ PC (5.25") 3058 ☐ PC (3.5") 3059

LC4

Part 8



In his final article Roland Waddilove shows you how to rub out your mistakes

CHANGE the cards

```
CARD INDEX DATABASE

1. Load a box of cards
2. Save a box of cards
3. Read/search for a card
4. Write on a new card
5. Throw away old cards
6. Change something on a card
7. Print the cards
8. Sort the cards into order
9. Stop the program
Cards free=45/Cards used=6
What do you want to do?
Please type in a number (1- 9)
```

Here it is: The last routine of the *Let's Compute!* database. Add it to the previous bits and you have a fully working mini-database!

This month's lines form another self contained subroutine. They start at Line 6000. What they do is let you to change what you have written on a card.

This is useful if you make a mistake and want to correct it. But that's not all!

Suppose you are using your database to store your friends' addresses. If one moves, the address will need changing.

Or you could be keeping a list of your videos or music cassettes on computer. If you wipe a tape and replace the recording with something else you need to change the information in your database.

LOAD the program that you've built up over the past few months. Then add the lines shown on the right. SAVE your new version and RUN it.

Type in a few cards so you can check the new bit. Now, to change a card just choose option 6 from the menu. Follow the instructions that will be printed on your screen and you can easily modify your data.

Your *Let's Compute!* database is now complete. But that doesn't mean you have to stop tweeking it. There are lots of improvements and new features you can add.

The idea is to use this program as a framework and create your own customised database.

Change the cards program

```
6000 REM ===== Change card =====
6010 X=1
6020 IF C$(X)="*" THEN GOTO 6150
6030 CLS
6040 FOR Y=0 TO 4
6050 PRINT "Line";Y+1;":";C$(X+Y)
6060 NEXT Y
6070 PRINT
6080 INPUT "Change this card (Y or N)";K$
6090 IF K$<>"Y" AND K$<>"y" THEN GOTO 6150
6100 PRINT
6110 INPUT "Which line";Y
6120 PRINT "Line";Y;":";
6130 INPUT T$
6140 C$(X+Y-1)=T$
6150 X=X+5
6160 IF X<255 THEN GOTO 6020
6170 RETURN
```

This program works on all home micros

HERE'S HOW IT WORKS

The information on the cards is stored in an array called *C$(255)*. Each card is five lines long. If nothing has been written on a card the first line is simply an asterisk (*).

So Line 6020 checks for an asterisk and jumps over most of the lines in the subroutine if it finds one. If there is an asterisk nothing has been typed in so there's nothing to change!

If the card has been written on it is printed on the screen. The computer then asks if you want to change the information shown. If you say No, the program jumps over a bit of code and looks for the next card. But if you answer yes the program asks you which line of the card you would like to alter.

WARNING: Be careful what you enter here. The program doesn't check if the number you have typed makes sense. If you type in something silly you might change what's been written on a completely different card.

Line 6110 is the one that asks which line you want to change. Then Line 6120 prints what's already there and 6130 give you the chance to type in a new one. The new line is stored in the array and the program continues with the next card.

It's a very simple system, but it works. You could try modifying the subroutine so that you can alter another line on the card at the same time. At the moment you can only change one. It's not a difficult problem to solve, but it's one I'll leave up to you!

IS THIS YOUR COMPUTER?

Archimedes, Electron, BBC, Atari ST(Stos), Amiga(Amos), PC(GW-Basic)

The program works as shown.

Spectrum

Change this line:

```
6020 IF C$(X)=B$ THEN GOTO 6150
```

Amstrad CPC

In the January issue, Line 2080 – which saves the cards – should have been:

```
2080 WRITE #9,C$(X)
```

Commodore 64/128

Change or add these lines:

```
6030 PRINT CHR$(147);
6130 T$="":INPUT T$
6135 IF T$="" THEN T$="*"
```

The Games Gang

Schwarzenegger Simulators

Fans of Arnold Schwarzenegger will soon have another game to add to their collection. Ocean have announced that they've got the licence for the big man's forthcoming movie – *Terminator 2.*

He repeats his role as a killer cyborg trained in death and brutal destruction.

There's no news yet as to exactly what the game will be like. But it should be hitting the shops in the autumn.

Meanwhile, watch out for another Arnie sequel: *Predator 2* from Mirrorsoft.

Reflections

Did you miss some of Mirrorsoft's best games the first time around? Now's your chance to catch them again at a bargain price.

The company is launching its own budget label called Mirror Image. Some of the first games to be released include the Cinemaware titles **Defender of the Crown and Rocket Ranger.**

Plans to release the Bitmap Brothers' fab future sports simulator Speedball and Rainbird's classic **Carrier Command** are also in the pipeline.

In the System

Looking for a bargain? System 3 are about to release four of their best 8-bit games on one compilation – and for only £14.99.

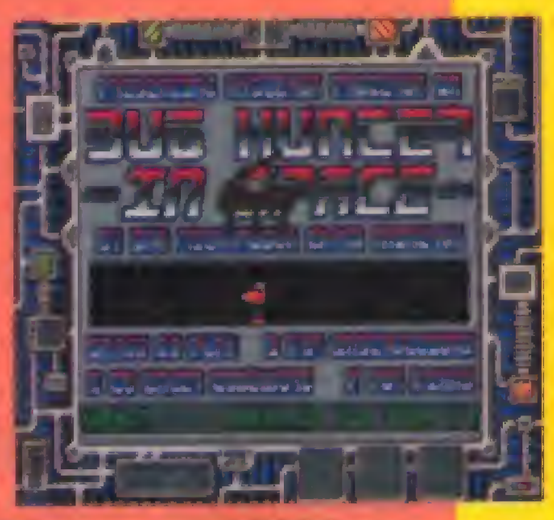
The games you get are **Vendetta** – an arcade adventure with a bit of driving thrown in, **Flimbo's Quest** – a cute platform game **Ninja Remix** – a revised version of the excellent Last Ninja, and **Myth** – one of the best 8-bit platform adventures around.

It will soon be available for the Amstrad CPC, C64 and Spectrum. Tapes will cost £14.99 and the disc versions will be £19.99.

Pam's Passwords

If you just can't make it through the Amiga version of Prophecy – The Viking Child help is at hand. To progress a little more with this nifty platform game try the following codes:

Level	Password
1	IMAGITEC
2	JOJO SM
3	GUSTAVUS
4	NINJADL



Tomas Walder (12) from Bromley has help for people stuck on **Bug Hunter 2 – Bug Hunter in Space.** If you've got as far as the last level but no further, then type in the password POSDNUOS on your A3000 or Archimedes.

BBC owners stuck on **Pipemania** can thank Daniel Gardner from Thatchom for the passwords to this superb game:

Level	Password
5	Schnapps
9	Symmetry
13	Triptych
17	Skylarks
21	Rhythmic
25	Flyblown
29	Knightly
33	Gymnasts

Lee McShane (12) from Woodham Village has sent a Spectrum Password. It's for **Freddy** – Part 2. The password is 097563.

Take the Driving Wheel

Following along the tracks of *E-Type* and *Powerband*, Fourth Dimension have come up with another great car racing game.

It's for the Archimedes and called *Saloon Cars*. You take the place of an amateur racing driver with an Astra GTE.

If you can prove yourself you can move up the ranks to a BMW M3 and Sierra Cosworth. Some really good graphics of Silverstone and car interiors add to the game.

***Saloon Cars* will be available in the shops in June for £24.95.**

Cyberbrain Goes Crazy

Remember **Carrier Command**? It was one of the most complicated 3D games of all when it first hit the shelves a couple of years ago.

It should be out on budget soon so check it out if you missed it. Now two of its programmers have got together to produce something even bigger.

Cybercon III is set in a huge rambling 3D world containing 400 completely different rooms. There are also 160 different objects.

The story's all about a giant computer that's gone mad. The only way to switch it off is to go inside its giant housing. There you must brave the security robots and find the four pieces of the key. They lead to the computer's brain-stem.

The gameplay and graphics are great. And it's easy to get caught up in the exciting atmosphere.

If you've got an Atari ST, an Amiga or a PC and you like 3D adventures you should snap this one up.

If you've any hints, pokes or cheats you'd like us to print send them to:

Let's Compute!
Europa House,
Adlington Park,
Macclesfield
SK10 4NP.

CHARLIE'S CHEATS!

Do you have problems with **Golden Axe** on the C64? Sick of fighting? Then skip those boring levels. How? I'll show you!

Start playing and press RUN/STOP. then press the semi-colon key to skip to the next stage.

Simple, isn't it?

After playing **Batman the Movie** on his Amiga, Jonathan Oxford (10) from Langport has found a way to skip levels. Type Jammmm as Batman and the Joker appear and keep the M key held down until the screen turns upside down. If you press the F10 key you'll be able to skip levels.

Are the four **Mutant Hero Turtles** giving you a hard time on your Atari ST? Then here are some ways to improve your fortunes.

For infinite energy, wait until you're asked for a code. Type in 8859, then 1506 and finally the proper code using the official code sheet.

Here's one for the more adventurous of you. If you're having problems with **Indiana Jones and the Last Crusade** on the C64, Peter Armann (11) from Thurmanston has the solution.

Press the keys SHFI while you are on the title screen. The words Cheat Mode On will appear. When you are on levels 1, 2 or 3 pressing any key between 1 and 5 will take you to different places on that level.

Pressing 6 will take you to the next level. But pressing 6 on level 4 will take you to the end of the game.

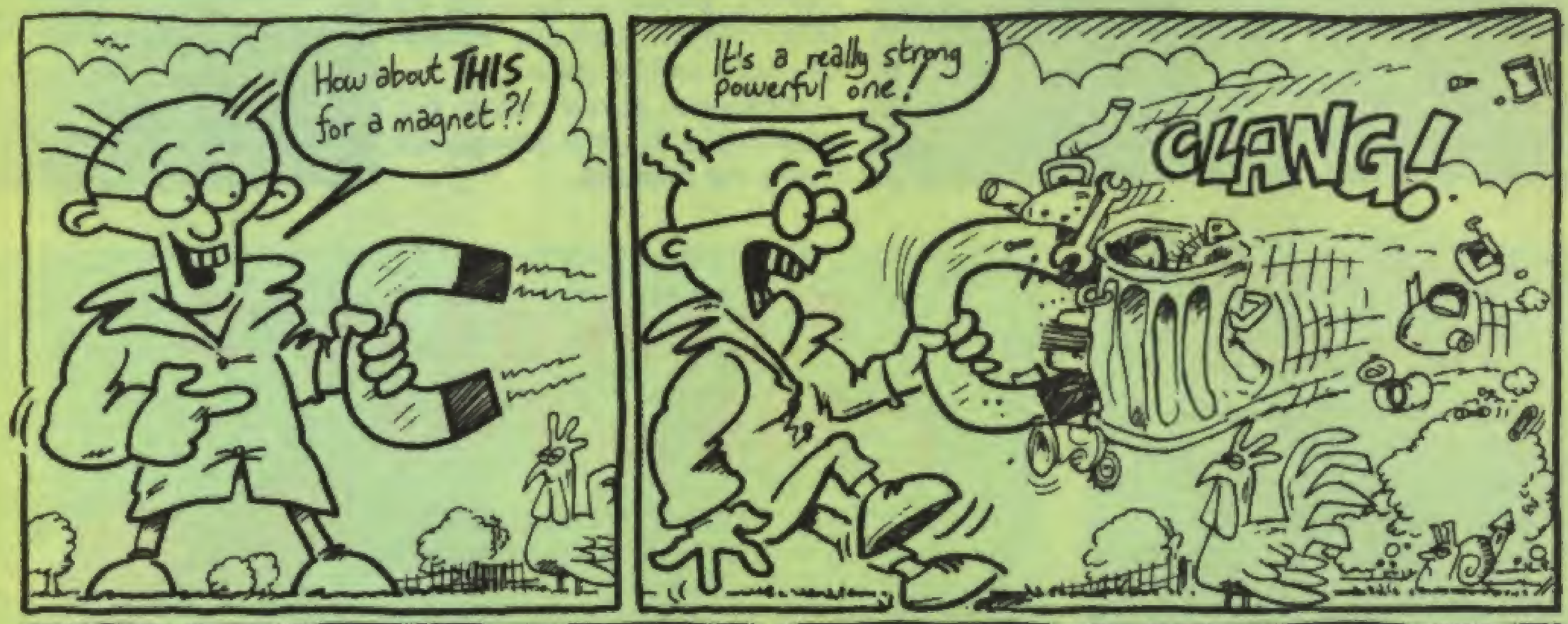
Simon Brambley (11) from Grimsby has been working really hard on **Gauntlet II** on his Atari ST. If you press P the game will pause. If you then wait for five minutes and press fire all the walls will turn to exits.

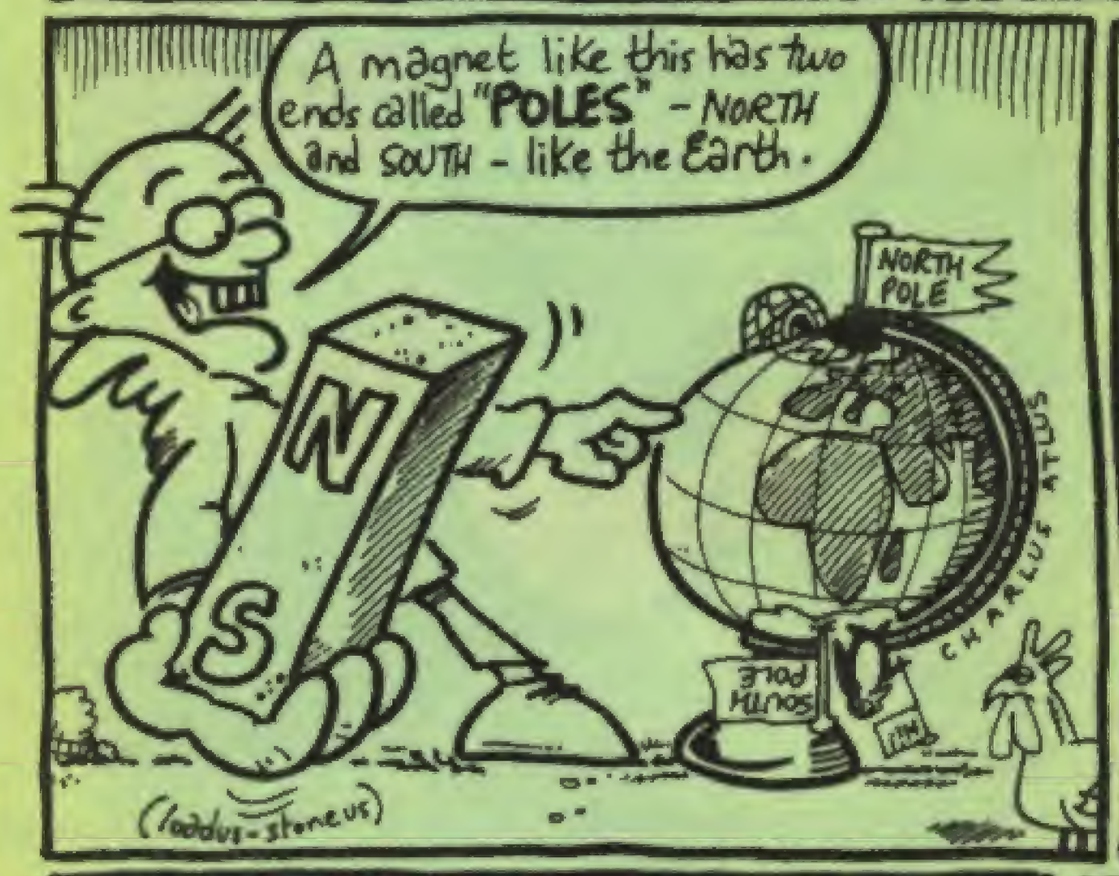
Richard Irons wrote to us with a cheat for **Shadow of the Beast 2** on the Amiga. When you start to play walk right until you come across the first man.

Press A and when your compuer prints *Ask about what?* you reply *Ten pints*. The computer will respond with *This one's for you Roger! Cheat mode now active*.

You'll find that you now have infinite energy.

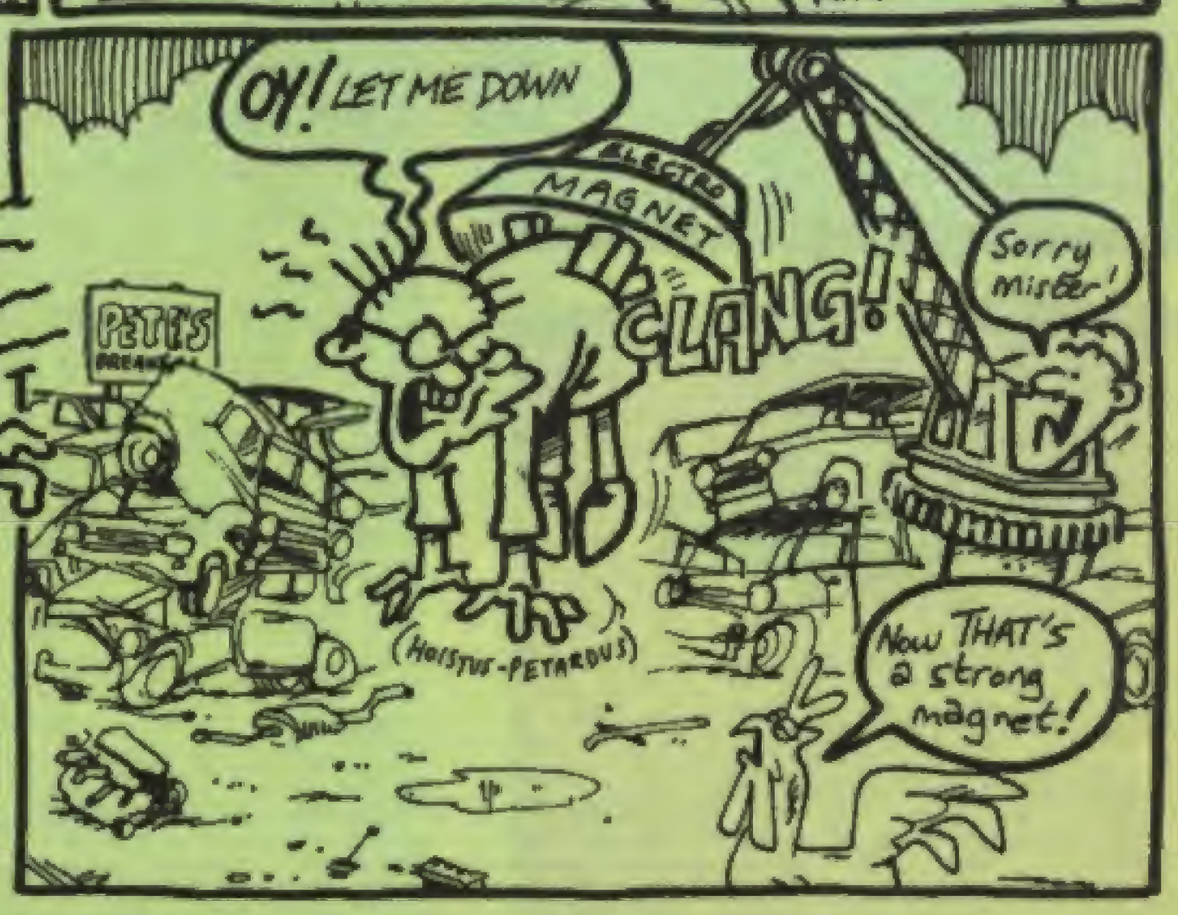
The Safe


How about THIS for a magnet?!
It's a really strong powerful one!
GLANG!


A magnet like this has two ends called "POLES" - NORTH and SOUTH - like the Earth.
NORTH POLE
SOUTH POLE
N
S
CHARLUS ATLUS
(laddus-stoneus)

If you place two magnets near to each other...
(nosey-parkus)
S
N
N
S
MY BIG MAGNET KIT
A DATACASE DIRECT PRODUCT
OIL MAGNETS
Masker mind with MAGNET MAGNETSON
MAG

...strange things will occur!
strange things occuring
SPIN
SPIN


OY! LET ME DOWN
ELECTRO MAGNET
CLANG!
Sorry Mister!
PETE'S
(HOISTUS-PETARDUS)
Now THAT's a strong magnet!

Scientist

ATTRACT OR REPEL

The Safe Scientist plays with a magnetic model

Magnets attract some metal objects. But what happens if two magnets are put near each another? The program here is a simple investigation. It lets you find out just what DOES happen. Magnets have two ends. One is called the north pole and the other is the south pole. We need to find out what happens when poles are put near each other.

This computer simulation lets you do it without having to mess about with real magnets.

When you RUN the program two magnets are shown. They have red and blue ends – just like real ones.

Press the spacebar and one magnet will move. It will stop when it is in line with the other. That will move according to the laws of magnetism.

You can do the experiment as many times as you like by just pressing the spacebar. The poles of the magnets are arranged in a random way each time.

Try to come up with a rule. This means that you will be able to say what will happen BEFORE you run the program.

```
   10 REM MAGNETS
   20 REM THE SAFE SCIENTIST
   30 DIM T(3):FOR I=1 TO 3:READ T(I):NE
XT I:LET S$="          ":REM 10 SPACES
   40 MODE1:VDU23;8202;0;0;0;0;:VDU19,2,
4;0;
   50 LET MAG1=RND(2):LET MAG2=RND(2)
   60 LET Y=10
   70 IF MAG1=1 THEN LET X=7:GOSUB 440:L
ET X=12:GOSUB 450
   80 IF MAG1=2 THEN LET X=7:GOSUB 460:L
ET X=12:GOSUB 470
   90 LET Y=3
  100 IF MAG2=2 THEN LET X=22:GOSUB 440:
LET X=27:GOSUB 450
  110 IF MAG2=1 THEN LET X=22:GOSUB 460:
LET X=27:GOSUB 470
  120 LET X=14:LET Y=18:LET A$="PRESS SP
ACE":GOSUB 480
  130 LET X=9:LET Y=20:LET A$="TO MOVE R
IGHT MAGNET":GOSUB 480
  140 GOSUB 490
  150 LET C=1:GOSUB 1000:LET X=14:LET Y=
18:LET A$=S$+" ":GOSUB 480
  160 LET X=9:LET Y=20:LET A$=S$+S$:GOSUB
480
  170 FOR N=3 TO 10:LET Y=N
  180 IF MAG2=2 THEN LET X=22:GOSUB 440:
LET X=27:GOSUB 450
  190 IF MAG2=1 THEN LET X=22:GOSUB 460:
LET X=27:GOSUB 470
  200 LET C=1:GOSUB 1000:LET X=22:LET Y=
N-1:LET A$=S$:GOSUB 480
  210 GOSUB 500
  220 NEXT N
  230 IF MAG1=MAG2 THEN GOSUB 280
  240 IF MAG1<>MAG2 THEN GOSUB 360
  250 LET X=14:LET Y=20:LET A$="PRESS SP
ACE":GOSUB 480
  260 GOSUB 490
  270 GOTO 40
  280 FOR N = 7 TO 0 STEP -1:LET Y=10
  290 IF MAG1=1 THEN LET X=N:GOSUB 440:L
ET X=N+5:GOSUB 450
  300 IF MAG1=2 THEN LET X=N:GOSUB 460:L
ET X=N+5:GOSUB 470
  310 LET C=1:GOSUB 1000:LET X=N+10:LET
Y=10:LET A$=" ":GOSUB 480
  320 GOSUB 500
  330 NEXT N
  340 LET X=15:LET Y=18:LET A$="REPULSIO
N":GOSUB 480
  350 RETURN
  360 FOR N = 7 TO 12:LET Y=10
  370 IF MAG1=1 THEN LET X=N:GOSUB 440:L
ET X=N+5:GOSUB 450
  380 IF MAG1=2 THEN LET X=N:GOSUB 460:L
ET X=N+5:GOSUB 470
  390 LET C=1:GOSUB 1000:LET X=N-1:LET Y
=10:LET A$=" ":GOSUB 480
  400 GOSUB 500
  410 NEXT N
  420 LET X=15:LET Y=18:LET A$="ATTRACTI
ON":GOSUB 480
  430 RETURN
  440 LET C=2:GOSUB 1000:LET A$="N    ":
GOSUB 480:RETURN
  450 LET C=3:GOSUB 1000:LET A$="    S":
GOSUB 480:RETURN
  460 LET C=3:GOSUB 1000:LET A$="S    ":
GOSUB 480:RETURN
  470 LET C=2:GOSUB 1000:LET A$="    N":
GOSUB 480:RETURN
  480  PRINT TAB(X,Y);A$:RETURN
  490 REPEAT UNTIL INKEY -99:RETURN
  500 FOR D = 1 TO 200:NEXT D:RETURN
 1000 COLOUR T(C):RETURN
 1010 DATA 128,129,130
```

IS YOUR COMPUTER HERE?

BBC, Electron, Archimedes

The program works as shown:

Amiga

Change these lines:

```
   40 PALETTE 3,.93,.2,0:COLOR 1,2:CLS
   50 LET MAG1=INT(RND*2)+1:LET MAG2=INT
(RND*2)+1
  480 LOCATE Y+1,X+1:PRINT A$:RETURN
  490 WHILE INKEY$<>" ":WEND:RETURN
 1000 COLOR,T(C):RETURN
 1010 DATA 2,3,0
```

PC (GW-BASIC)

Change these lines:

```
   40 CLS
   50 LET MAG1=INT(RND*2)+1:LET MAG2=INT
(RND*2)+1
  480 LOCATE Y+1,X+1:PRINT A$:RETURN
  490 WHILE INKEY$<>" ":WEND:RETURN
 1000 COLOR,T(C):RETURN
 1010 DATA 0,4,1
```

ST(STOS)

Change or add these lines:

```
   15 MODE 1:KEY OFF:CURS OFF:HIDE
   40 PALETTE $0,$700,$007,$777:CLS
   50 LET MAG1=INT(RND*2)+1:LET MAG2=INT
(RND*2)+1
  480 LOCATE X,Y:PRINT A$:RETURN
  490 WHILE INKEY$<>" ":WEND:RETURN
 1000 PAPER T(C):RETURN
 1010 DATA 0,1,2
```

Spectrum

Change or add these lines:

```
   40 PAPER 7:CLS
   50 LET MAG1=INT(RND*2)+1:LET MAG2=INT
(RND*2)+1
  480 IF X>2 THEN PRINT AT Y,X-3;A$
  485 RETURN
  490 LET K$=INKEY$:IF K$<>" " THEN GOTO
490
  495 RETURN
 1000 PAPER T(C):RETURN
 1010 DATA 7,2,1
```

Amstrad CPC

Change these lines:

```
   40 MODE 1:INK 0,0:INK 2,6:INK 3,2:INK
1,26
   50 LET MAG1=INT(RND*2)+1:LET MAG2=INT
(RND*2)+1
  480 LOCATE X,Y:PRINT A$:RETURN
  490 WHILE INKEY$<>" ":WEND:RETURN
 1000 PAPER T(C):RETURN
 1010 DATA 0,2,3
```

Commodore 64/128

Change these lines:

```
   40 PRINT CHR$(147);
   50 LET MAG1=INT(RND(0)*2)+1:LET MAG2=
INT(RND(0)*2)+1
  480 POKE 211,X:POKE 214,Y:SYS 58732:PRI
NT A$;:RETURN
  490 GET K$:IF K$<>" " THEN GOTO 490
  495 RETURN
 1000 PRINT CHR$(18);CHR$(T(C));:RETURN
 1010 DATA 144,28,31
```

NEXT MONTH we'll look at another computer model. We'll study the growth of a colony of bacteria. Ugh!

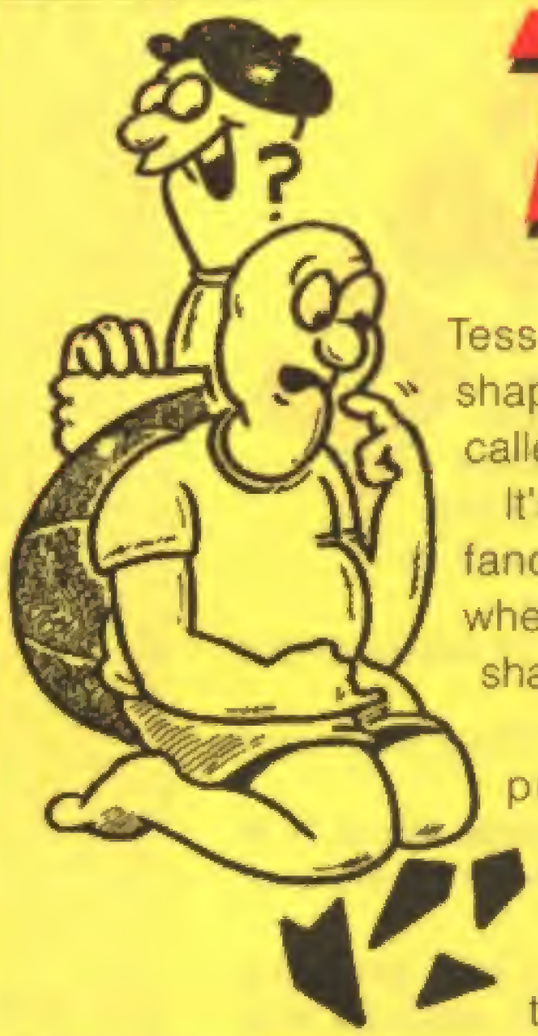
Your own logo disc or tape for £1!

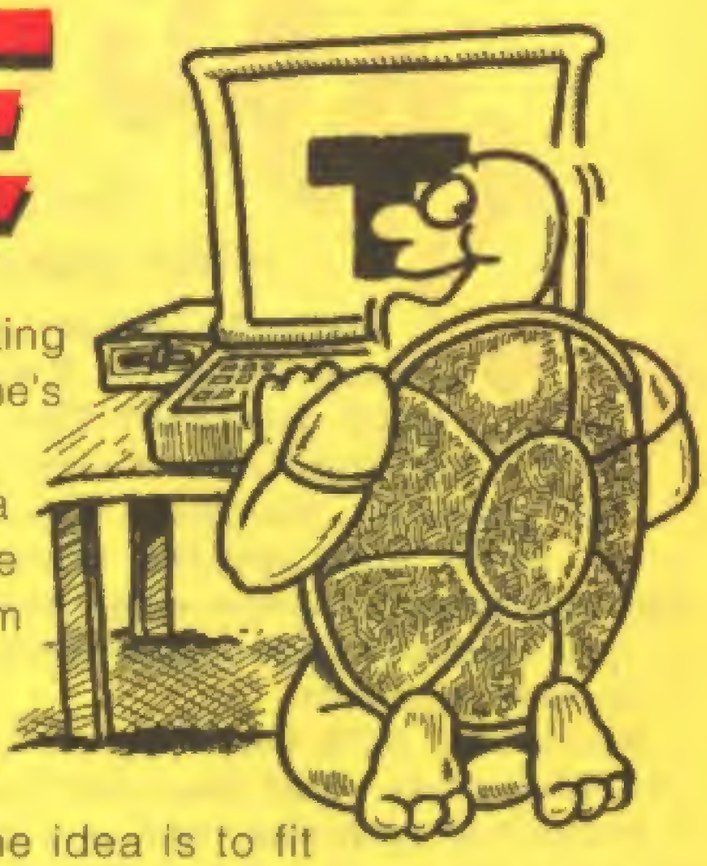
Turtle graphics is a vital part of any Logo program. And that's what Turtle Logo is. Specially written for the Electron, BBC Micro and A3000/ Archimedes series, it is on the tape or disc that comes with the Let's Compute! Club bumper pack.

You can find out how to join the Club on Page 28 – and about all the other goodies sent out to members.

However, if you only want Turtle Logo we'll send it to you for just £1 if you complete and return the coupon below

IT'S PUZZLE TIME





Tessa turtle is an expert at fitting shapes together. That's why she's called Tessa.

It's short for Tesselation. It's a fancy word maths experts use when they make a pattern from shapes.

Now Tessa's made a puzzle. It's just the four shapes shown below. The idea is to fit them together to make Tessa's initial – T.

Try it yourself! Cut out the shapes and see if you can arrange them into the letter T.

Tessa gave the puzzle to Tubby. He couldn't do it at first. But he's a real wizz on his computer.

He worked out a Logo program that gives the answer. You can see it below.

If you can't solve Tessa's puzzle, just use Tubby's program. But first you need to run the Logo Language. This is available for most makes of home computer.

(If you haven't got Logo and you're using an Acorn computer the Let's Compute! *Turtle Logo is an ideal starting point – see the offer on the left.)*

Just type in Tubby's program. You can then discover the answer to the puzzle by entering:

```
TSHAPE 100
```

Can you draw an interesting, pattern or shape in Logo? If you can we'd love to see it. Post it to *Let's Compute!* Adlington Park, Macclesfield SK10 4NP. There's a super *Let's Compute!* baseball cap for the writer of every one we print.

Tubby's program

```
TO TSHAPE :BIG
HT RT 180
FD :BIG RT 90
FD :BIG LT 90
FD :BIG * 2 RT 90
FD :BIG RT 90
FD :BIG * 2 LT 90
REPEAT 2[FD :BIG RT 90]
FD :BIG * 3 RT 135
FD :BIG * 28 / 10 RT 135
FD :BIG LT 90
FD :BIG * 5 / 10 RT 135
FD :BIG * 14 / 10
END
```

ORDER FORM

Please send me the *Let's Compute!* Turtle Logo. I enclose cheque, postal order or stamps the the value of £1.

(Only suitable for Electron, BBC Micro or Archimedes series.)

Name .....

Address .....

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Please send it on:

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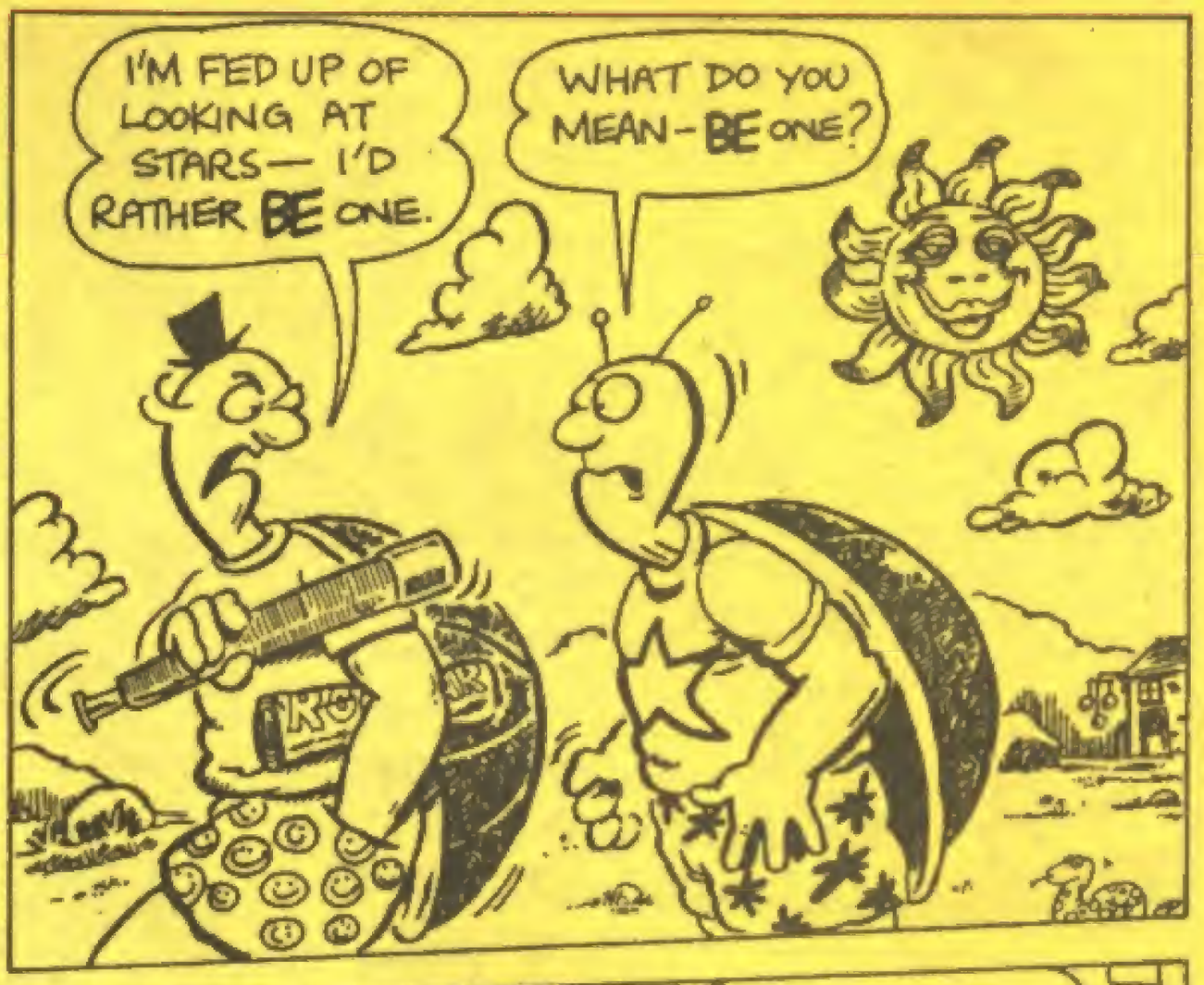
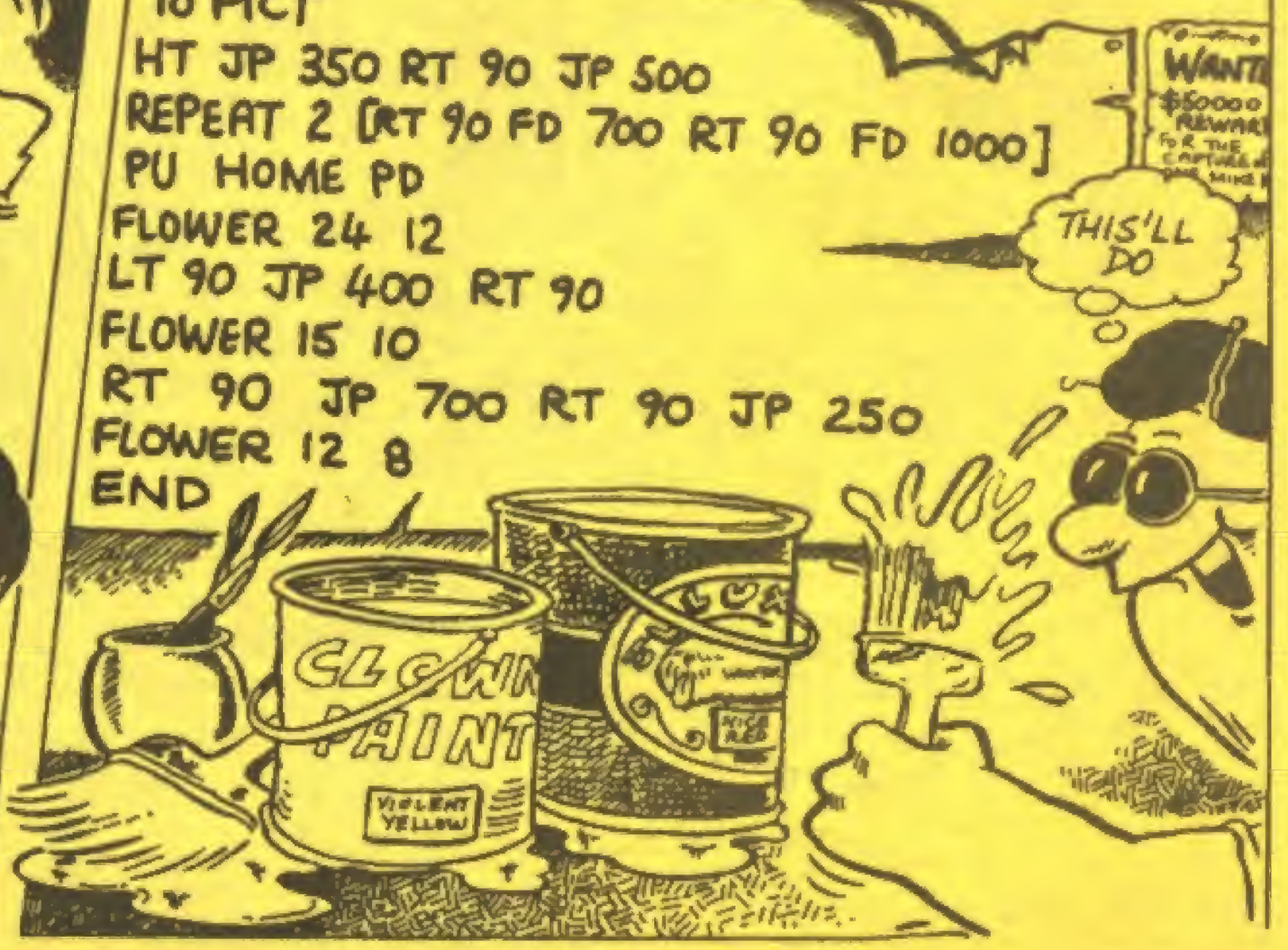
LOGO LONDOWN



... AND PAINTING EQUIPMENT.

```
To PICT
HT JP 350 RT 90 JP 500
REPEAT 2 [RT 90 FD 700 RT 90 FD 1000]
PU HOME PD
FLOWER 24 12
LT 90 JP 400 RT 90
FLOWER 15 10
RT 90 JP 700 RT 90 JP 250
FLOWER 12 8
END
```



WE'LL NEED A COUPLE OF SKATEBOARDS TOO!

WHY?

ZOOM

SO WE CAN ATTACH BRUSHES TO THE BACK.

PLANS

WE'RE GONNA PAINT A FLOWER ACTION PAINTING ON A GIANT BIT OF HARDBOARD.

GIANT D.I.Y. HARDBOARD SHOP

```
TO FLOWER :S :N
REPEAT :N [PL :S :N JP :S RT 360 / :N]
END
```

SO, THE TURTLES DIP THEIR BRUSHES...

PAINT

...AND SCOOT ABOUT ALL OVER THE "CANVAS"

THEY SOON ATTRACT A CROWD

```
TO JP :S
PU FD :S PD
END
```

BE BIG, BOLD AND BAD!

SUCCESS WAS SOON FOLLOWED BY...

HEY, THIS IS GOOD!

YOU RECKON?

HONEST?

TASTES GOOD TOO!

LIFT

ACME FILM CO

```
TO PL :S :N
JP :S * 2 RT 90
REPEAT :N [FD :S RT 360 / :N FD :S]
RT 90 JP :S / 2 RT 180
END
```

TURTLE PROFILE

TURNER TURTLE

FACTS

HEIGHT: 4'
EYES: 2
HAIR: LOADS!
CLOTHES: BOHEMIAN
LIKES: LEMON CAKE
DISLIKES: BLUE MOODS
FAVOURITE FOOD: ORANGES
HOBBIES: SKETCHING AND STARVING!

TURNER SAYS:-
"I'D LOVE A PROPER JOB."

... MEGA SUCCESS!

COR!

WELL WICKED!

ACE LADS! I'LL MAKE YOU BOYS **FAMOUS**. HERE'S £50,000 ADVANCE ON YOUR FILM ROYALTIES!

WHACK!

RICH PRETENTIOUS ART BUYER AND FILM PRODUCER

LOADS of LOOT!

TO SEE THE PICTURE THE TURTLES PAINTED TYPE IN PICT

PL MEANS PETAL
JP MEANS JUMP

NOTES:

THE WORD **FLOWER** TAKES TWO NUMBERS – EXPERIMENT WITH THEM.

IF YOU'RE USING **TURTLE LOGO** REPLACE **REPEAT** WITH **REP** SO THAT IT WILL FIT ON ONE LINE

THE VARIABLES ARE **S** (SIZE) AND **N** (NUMBER OF LINES DRAWN FOR A PETAL)

NEXT MONTH
THE "TURTLES" JOIN "THE ARCHERS!"

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FIRST THE LEFT EAR. THEN THE RIGHT EAR, AND NOW

THE FINAL FRONT-EAR

THE DIRECTOR OF DELTABASE, ABOARD THE "U.S.S. EUROPA WALLET SHIP", HAS CAUGHT UP WITH DIM - WHO OWES HIM MONEY!

YOU OWE ME LOADS OF MONEY - GIVE!

PROD

SCANNER ON

OH NO! I CAN'T - I'M SKINT!

PURSE

THEN YOU SHALL PAY THE PENALTY...

NO!

HOT SPOT

STEREO

RAPID CASH

WASTE DISPOSAL

1000 WHEN LIT

...YOU WILL BE BANISHED TO THE PLANET TERMAGANT.

NO! PLEASE!

BUT THE DIRECTOR CAN'T FIND THE **ON** SWITCH ON HIS **LAPTOP COMPUTER** TO BANISH DIM!

WHERE THE WALLET IS IT?

IF HE SWITCHES IT ON - I'M DOOMED!

COLD WASH

HOT WASH

DESTROY WASH

QUICK! PUT YOUR FOOT DOWN SLOPPY!

U.S.S.E.U. DELTABASE

WALLET

YOU WON'T ESCAPE ME DIM!

BUT

WWAYYHAYYYY

HI HO SHED! -AWAY!

OUT OF SERVICE SORRY!

ON

OFF

GOOD JOB THE DIRECTOR DIDN'T FIND THE **ON** SWITCH EH DIM?

YEH! AND IT WAS RIGHT INFRONT OF HIM!

MAG

BUT THE DIRECTOR WAS STILL WITHIN **HEARING** DISTANCE

I HEARD THAT DIM! NOW - **BE GONE!** HA HA!

ZIP!

ZAP

EEK!

AND SO DIM IS ZAPPED TO THE PLANET **TERMAGANT!**

WHAT DO **YOU** WANT?

WHAT THE...

OH DEAR! BIG NASTY WOMEN ON THIS PLANET **DIM** - AND THEY DON'T LIKE **MEN!** TREMBLE 'TIL NEXT MONTH!

BE A BUG HUNTER!

ONLY available to *Let's Compute!* readers – five Bug Hunter + Bug Hunter in Space packs must be won!

BugHunter has made quite a name for himself.

He keeps the Archimedes free of all sorts nasties and creepy crawlies.

Now *Let's Compute!* is offering five readers a chance to win a copy of BOTH of his adventures.

Bug Hunter was his first adventure. It features a very special hero called Hysteron Proteron.

Genetic scientists decided to produce an incredibly strong, intelligent and loyal super soldier. But something went wrong!

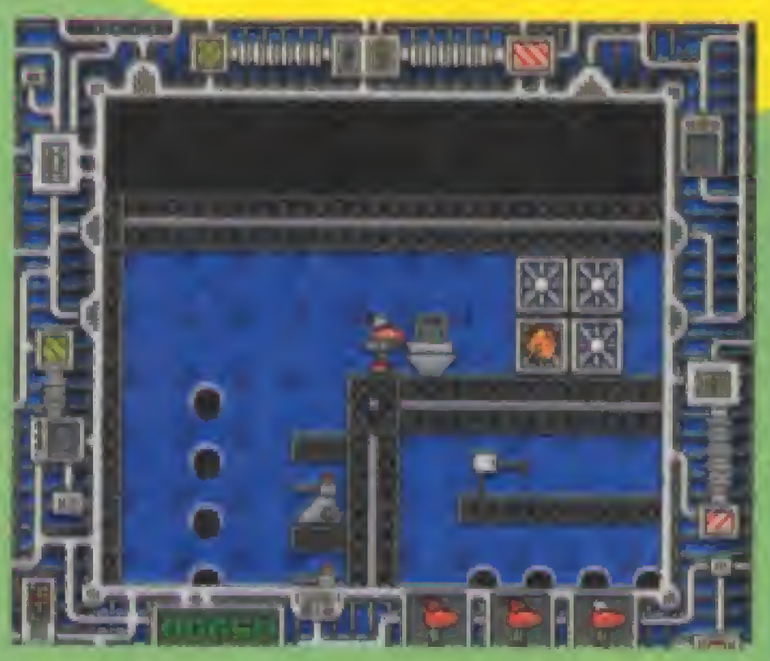
The result was a six inch two-legged creature. He has a big mouth and a hatred for insects.

He has sticky feet allowing him to walk upside down. He can leap high into the air to get past obstacles. And he can lift all sorts of strange objects to destroy the bugs he meets.

Bug Hunter in Space took our hero on a very special mission. After proving himself on earth, he is needed to prevent an alien invasion of bugs from outer space. He must visit each ship and switch off its engines. Then he has to dispose of all the aliens and make each ship self-destruct.

With larger areas to explore than in his original adventure there are even more difficult puzzles to solve. The bugs are very different too.They are the most evil creatures you could ever dread to meet!

Both of these brilliant games could be yours if you can answer the four simple questions on this page.



The Questions

1 How many legs do spiders have?
A. Six
B. Eight
C. Four

2 A ladybirds' favourite food is:
A. Leaves
B. Aphids
C. Flowers

3 A Black Widow is a kind of:
A. Spider
B. Fly
C. Snake

4 What do you call a group of bees?
A. Plague
B. Swarm
C. Coven

Now complete the entry form and send it to us at *Let's Compute!* to arrive no later than May 31.

Entry Form

Name .....

Address .....

.....

.....

Postcode ..... Age .....

Answers

1 .....

2 .....

3 .....

4 .....

My computer is a: ☐ BBC A3000 ☐ Archimedes

Send to: BugHunter Contest, *Let's Compute!* Europa House, Adlington Park, Macclesfield SK10 4NP.

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Unit 4, B.D.C, 21 Temple Street, Wolverhampton WV2 4AN. Tel: 0902 25304

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PRIZE WINNERS

ALTERNATIVE PRIZES

In the March issue of *Let's Compute!* we offered 60 Alternative games. We received loads of entries with the correct answer – Mad as a March hare.

The following are the lucky winners:

Copies of **Count Duckula** are winging their way to: Damien Terry, St Athan Barry; Peter McKeon, Upton; Vicky Rees, Barry; Stephen Worton, Middlesbrough; Simon Brambley, Grimsby; Adam Kendal, Latimer; Kathy McFarlane, Dundonald; Simon Tuddenham, Dorney; S Weightman, Feltham; Jessica Davies, Maidenhead and Stewart Sharp, Glastonbury.

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Thomas the Tank Engine will find welcome homes with Richard Outhwaite, Solihull; Andrew Peatling, Hewish; L Huckle, Burghfield Common; Michael Bayliss, Porthill; Mathew B, Culmington, Andrew Johnson, Isle Of Harris; Andrew Oakes, Crewe; Karl Scovell, Nottingham; Taranjit Bahra, Handsworth; James Munce, Southampton and Matthew Leonard, South Harrow.

Sooty's Fun with Numbers will soon be challenging: Paul Darnbrough, Sutton Park; Gill Ford, Watford; R Springett, Clapham; Lisa Corbett-Wilson, North Mundham; Christopher Key, Grimoldby; Jamey Day, Old Marston; Shane Kelly, Co Derry; Tim Phillips, Burnham-On-Sea; James Town, Wallington; Sarah Miller, Watten Wick and Paula Gower from Hastings.

HOMES FOR MICE

Ten lucky winners of the Beebug Contest will be able to rehouse their mice. A comfortable home, cover and mat are on the way to: J Tanner, Charlton; Paul Moore, Hetton-le-Hole; Douglas Freeman, Monmouth; Martin Critchell, Alton Pancras; Kathryn Balaam, Hitchin; Richard Ward, Crawley; Kathryn Warren, Chester-le-Street; K Palmer, Tonyrefail; Andrew Wright, Northallerton and Lee Ganfield, Frinton-on Sea.

HIGH SCORE CHALLENGE!

Game	Computer	Score	Name	Age
Advanced Pinball	C64	38,385	David Yu	12
Afterburner	ST	11,703,990	Simon Bramley	11
After Burner	CPC	21,000,370	Isaac Griffiths	12
Atic-Attack	BBC	6,790	Ed Renshaw	12
Barbarian II	Electron	40,945	Scott Latham	12
Beach Head	Electron	107,125	Kenneth Bolt	15
BirdBash	BBC	123,500	Rowley Osborn	10
Bombjack	ST	361,630	Karen Morris	11
BuggyBoy	Amiga	80,000,070,507	Shafick Khoodabux	11
Bughunter II	Archimedes	7115	James Watson	10
Carousel	BBC	12,590	Chris Bell	10
Caveman Capers	BBC	40,120	Gareth Corbett	12
ChocksAway	Archimedes	4,050	Christian Webb	13
Chuckie Egg	Electron	7,347,110	Royston Palin	10
Crazee Rider	BBC	19,500	Sean Betts	10
3D Pinball	C64	36,020	Nicholas Goodwin	13
Digger	PC	73,125	Andrew Oakey	13
DoubleDragonII	Spectrum	264,234	Lee McShane	12

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Klax	BBC	147,025	Hamish Lockie	10
Martian Attack	BBC	12,250	Matthew Jack	8
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Outrun	PC	8,884,650	Gareth Owen	12
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Skirmish	Electron	124,700	Matthew Lee	14
Snake	CPC	469	Rachel Cattell	9
Spyhunter	Archimedes	146,573	Lalith Vin	12
Swoop	Electron	12,820	Martin Dean	13
Test Drive	Amiga	109,376	John King	11
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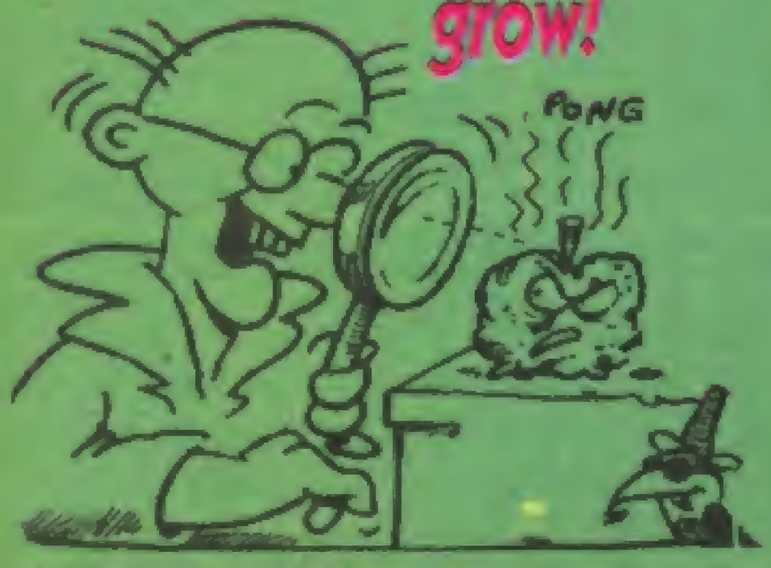

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- Improved enemy pilots capable of performing loops, rolls, stall turns etc. All enemy planes are carefully modelled using the same equations controlling your own plane. This ensures both an accurate and fair simulation.
- More enemy planes and targets to shoot including: Three Engine Fighters, Enormous Cargo Planes, Airships, Barrage Balloons, Gun Boats, Oil Tankers, Trains etc.
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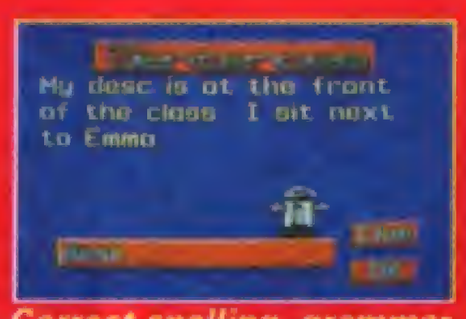

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